**Adobe**

# Preparing to Upgrade to LiveCycle® ES2 from 8.x

**Adobe® LiveCycle® ES2**

Version 9

# Contents

# About This Document

This document provides the information that is required to prepare your server environment for upgrading to Adobe® LiveCycle® ES2 (Enterprise Suite) version 9.0 from LiveCycle ES (8.x) on JBoss® Application Server, IBM® WebSphere® Application Server, or Oracle® WebLogic Server®.

## What's in this document?

This document contains the following types of information:

- Information about the changes in LiveCycle ES2 that may affect your upgrade planning and an overview of how the upgrade process works, including an outline of the tasks involved

- All the tasks that must be performed to ensure that the upgrade runs correctly with minimal server downtime (including backing up the existing LiveCycle ES (8.x) server and patching the application server as required)

- All hardware and software requirements and configurations that *must* be already in place to ensure a successful LiveCycle ES2 upgrade process

**Note:** If you are planning to perform an upgrade by using the turnkey method for JBoss, you do not need to perform many of the steps in this document. It is recommended that you review the section "Understanding the Changes in LiveCycle ES2" on page 12. However, all preparatory information for a turnkey upgrade, including system requirements, is included in *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x*.

After you complete the tasks in this document, proceed to the *Upgrading to LiveCycle ES2* document for your application server.

## Who should read this document?

This document also provides general information about the upgrading process that helps users estimate the resources that are required to upgrade to LiveCycle ES2. Readers who are interested in high-level information about the upgrade process can read the sections "Understanding the Changes in LiveCycle ES2" on page 12 and "System Requirements" on page 25.

This document provides information for administrators or developers who are responsible for preparing the application and database servers for development, staging, and production environments prior to installing, configuring, upgrading, administering, and deploying LiveCycle ES2. The information provided is based on the assumption that anyone reading this document is familiar with application servers, Red Hat® Linux®, SUSE™ Linux, Microsoft® Windows®, IBM AIX®, or Sun™ Solaris™ operating systems, MySQL, Oracle®, IBM DB2®, or SQL Server database servers, and web environments.

## Conventions used in this document

This document uses the following naming conventions for common file paths.

| Name | Description | Default value |
|---|---|---|
| *[LiveCycleES2 root]* | The installation directory used for all LiveCycle ES2 modules. The directory contains subdirectories for Adobe LiveCycle Configuration Manager, LiveCycle ES2 SDK, and LiveCycle ES2 licensed modules (along with the product documentation). This directory also includes directories that relate to third-party technologies. | Windows: C:\Adobe\Adobe LiveCycle ES2\  Linux and UNIX: /opt/adobe/adobe_livecycle_es2/ |
| *[appserver root]* | The home directory of the application server that runs the LiveCycle ES2 services. | JBoss on Windows: C:\jboss\  JBoss on Linux: /opt/jboss/  WebSphere on Windows: C:\Program Files\IBM\WebSphere\ AppServer\  WebSphere on Linux and UNIX: /opt/IBM/WebSphere/AppServer/  WebSphere on AIX: /usr/IBM/WebSphere/AppServer/ **or**  /opt/IBM/WebSphere/AppServer/  WebLogic Server 10g on Windows: C:\bea\wlserver_10.3\  WebLogic Server 10g on Linux and Solaris: /opt/bea/wlserver_10.3/  WebLogic Server 11g on Windows: C:\Oracle\Middleware\wlserver_10.3\  WebLogic Server 11g on Linux and Solaris: /opt/Oracle/Middleware/wlserver_10.3/ |

Most of the information about directory locations in this document is cross-platform (all file names and paths are case-sensitive on Linux and UNIX®). Platform-specific information is indicated as required.

## Additional information

The resources in this table can help you learn about LiveCycle ES2.

| For information about | See |
| --- | --- |
| Performing the upgrade from LiveCycle 8.x to LiveCycle ES2 using the turnkey method | *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x* |
| Upgrading from LiveCycle 8.x for JBoss, WebSphere, and WebLogic servers | *Upgrading to LiveCycle ES2 from 8.x* guides |
| Upgrading custom applications to LiveCycle ES2 | *Upgrading Applications to LiveCycle ES2 Using APIs* |
| General information about LiveCycle ES2 and the modules | *LiveCycle ES2 Overview* |
| What's new in this LiveCycle ES2 (Enterprise Suite) release | *What's New for LiveCycle ES2* |
| LiveCycle ES2 terminology | *LiveCycle ES2 Glossary* |
| Other services and products that integrate with LiveCycle ES2 | Adobe Developer Center |
| LiveCycle ES2 modules | *Adobe LiveCycle ES2* |
| All documentation that is available for LiveCycle ES2 | Adobe LiveCycle ES2 documentation |
| LiveCycle ES2 release information and last-minute changes that occur to the product | LiveCycle ES2 Release Notes |
| Patch updates, technical notes, and additional information about this product version | LiveCycle Support Center |

# 1    Introduction to Upgrading to LiveCycle ES2

This section provides information about the documentation that is available to help you understand the upgrade process. It also provides a high-level outline of the tasks that are involved in upgrading LiveCycle ES 8.x to LiveCycle ES2.

## 1.1   About the upgrade documentation

Several documents are available to help you upgrade to LiveCycle ES2:

- *Upgrading to LiveCycle ES2 from LiveCycle 7.x*
- *Preparing to Upgrade to LiveCycle ES2 from 8.x* (this document)
- *Upgrading to LiveCycle ES2 from 8.x for JBoss*
- *Upgrading to LiveCycle ES2 from 8.x for WebSphere*
- *Upgrading to LiveCycle ES2 from 8.x for WebLogic*
- *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x*
- *LiveCycle Configuration Manager Help* (available by pressing F1 when using LiveCycle Configuration Manager)
- *Upgrading Applications to LiveCycle ES2 Using APIs*

### 1.1.1   Upgrading to LiveCycle ES2 from LiveCycle 7.x

This brief document outlines the major tasks required to upgrade your LiveCycle 7.x environment to LiveCycle ES2. This upgrade path requires that you first upgrade to LiveCycle ES version 8.2 (upgrading to version 8.0 is possible but not recommended) before installing and upgrading to LiveCycle ES2. Links to all relevant upgrade documents are available in this document.

### 1.1.2   Preparing to Upgrade to LiveCycle ES2 (this document)

This document contains all the information you need about the following topics to prepare your system for upgrading from LiveCycle ES 8.x.

#### 1.1.2.1   Understanding what occurs during the upgrade process

Upgrading LiveCycle ES (8.x) to LiveCycle ES2 requires a series of tasks, most of which are automated by LiveCycle Configuration Manager. To gain an understanding of the automated and manual tasks involved in upgrading and how your system is affected, see "Overview of the upgrade process" on page 13.

#### 1.1.2.2   Preparing your environment for upgrade

Before you actually install LiveCycle ES2 and migrate LiveCycle ES (8.x) data and configuration to it, you must complete several tasks to prepare the LiveCycle ES2 environment. These tasks are covered in the following sections:

- "Understanding the Changes in LiveCycle ES2" on page 12

- "Upgrading your infrastructure" on page 20

- "Backing up the existing LiveCycle ES (8.x) environment" on page 20

- "Providing the LiveCycle ES (8.x) EAR files" on page 20 (Only if previously upgraded from LiveCycle 7.x or choose to install the LiveCycle 7.x compatibility layer.)

### 1.1.2.3  In-place or out-of-place upgrade

When upgrading from LiveCycle ES (8.x), two scenarios will influence how LiveCycle Configuration Manager configures your LiveCycle ES2 environment.

**Note:** You cannot perform an upgrade if you are changing your application server type, your operating system type, or your database type; this is considered a new installation. For example, if you are changing your application server from WebLogic to JBoss, you must perform a new installation.

**In-place upgrade:** If you are upgrading to LiveCycle ES2 using your existing LiveCycle ES (8.x) application server instance, this upgrade is considered in-place.

**Note:** Not all supported LiveCycle ES (8.x)combinations can be upgraded in this way for reasons such as your existing application server or database version is no longer supported, or your application server and database combination is no longer supported. If your existing combination is supported, you may have to apply service packs or patches to your products. Refer to "System Requirements" on page 25 for a list of supported combinations.

**Out-of-place upgrade:** If you are upgrading to LiveCycle ES2 and are changing computers or updating your application server version (major revision), this upgrade is considered out-of-place. If you are moving from a 32-bit version of your application server to a 64-bit version, this is also considered out-of-place. This method can be used when installing LiveCycle ES2 either locally or on a remote server. If you are upgrading from LiveCycle ES (version 8.2) WebLogic Turnkey to a supported LiveCycle ES2 WebLogic platform combination, then it is considered an out-of-place upgrade.

Prepare your new operating system, application server, or database according to the instructions in *Preparing to Install LiveCycle ES2 (single server)* or *Preparing to Install LiveCycle ES2 (server cluster)*.

### 1.1.2.4  Hardware and software prerequisites

Before upgrading, you must ensure that your hardware and software meets the requirements of LiveCycle ES2. Although LiveCycle ES2 is supported on some of the same platform combinations as 8.x, you may need to patch your application server to the most current version. You should also determine whether any updates are required in order to ensure optimal performance for LiveCycle ES2. (See "System Requirements" on page 25.)

### 1.1.2.5  Gathering the required information

During the upgrade process, you will be prompted to provide information about your existing 8.x server and database, and the target LiveCycle ES2 environment. For a checklist of the information you need during the upgrade process, such as directory paths, file names, and passwords, see "Gathering required information before you start" on page 20.

When you understand all the relevant changes between LiveCycle 8.x and LiveCycle ES2, and you have completed all the tasks that are described in this document, you can use one of the documents mentioned in the next two sections to perform the actual upgrade.

# 1.2  Upgrading to LiveCycle ES2 from 8.x

The documents *Upgrading to LiveCycle ES2 from 8.x for JBoss*, *Upgrading to LiveCycle ES2 from 8.x for WebSphere*, and *Upgrading to LiveCycle ES2 from 8.x for WebLogic* provide the information that you need to perform the actual installation and migration steps that make up the upgrade process. Each guide is specific to the application server you are using.

## 1.2.1  Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x

The *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x* document includes all the steps that are required to upgrade to LiveCycle ES2 for JBoss and MySQL from LiveCycle ES (8.x) by using the turnkey method. The turnkey method installs, configures, and upgrades the product.

You can upgrade using the turnkey method if you installed LiveCycle ES (8.x) by using JBoss turnkey and if the modules are deployed to the JBoss instance that was included as part of the turnkey installation.

**Note:** The LiveCycle ES2 turnkey option runs on JBoss 4.2.1 only. The LiveCycle ES2 installation will install and configure this product. Your existing JBoss 4.0.3 SP1 server instance can be removed once you have verified that your upgraded environment is working.

Perform this type of upgrade to rapidly get a LiveCycle ES2 system up and running for small-scale production, demonstration, evaluation, development, or training purposes. The turnkey method installs and configures a default set of Adobe and third-party products that provide a functioning LiveCycle ES2 environment.

**Note:** To perform an upgrade by using the turnkey method, you do not need to perform many of the steps in this document (*Preparing for Upgrading to LiveCycle ES2 from 8.x*). It is recommended that you review the section "Understanding the Changes in LiveCycle ES2" on page 12. However, all preparatory information for turnkey upgrades, including system requirements, are included in *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x*.

You can also upgrade using the turnkey method if your LiveCycle ES2 system will reside on a different computer. In this case, however, you will need to configure your database and global document storage (GDS) directory separately. The major tasks involved are:

- Manually copy the GDS directory to the new computer.
- Manually copy the lccs_data directory to the new computer or on a shared network drive.
- Manually restore your database backup to the new computer.
- Provide the details of the new GDS directory and database during configuration.

**Note:** While upgrading to LiveCycle ES2 using turnkey method, you must specify the same database credentials as for your LiveCycle ES 8.x turnkey installation.

## 1.2.2  Upgrading a LiveCycle ES 8.2 WebLogic Turnkey

There is no support for WebLogic turnkey in LiveCycle ES2. If you have an existing LiveCycle ES 8.2 WebLogic turnkey and need to upgrade, you must perform an out-of-place upgrade as described in the following pages and in the *Upgrading to LiveCycle ES2 from 8.x for WebLogic* guide.

### 1.2.3  LiveCycle Configuration Manager Help

Part of the upgrade is completed by using LiveCycle Configuration Manager, a wizard-like tool that leads you through the upgrade process, prompting you to provide the required information. On each LiveCycle Configuration Manager screen, you can press the F1 key to view the Help dialog box for that screen.

For more information about LiveCycle Configuration Manager, see the *Upgrading to LiveCycle ES2* document for your application server, mentioned earlier in this section.

## 1.3  Upgrading task outline

This section outlines the tasks that are involved in the upgrade process, from the planning stage to the post-deployment stage.

To upgrade from LiveCycle 8.x to LiveCycle ES2, you must complete the following tasks.

| Task | See |
| --- | --- |
| Understand the upgrade process (high-level section). | "Understanding the Changes in LiveCycle ES2" on page 12 |
| Understand the upgrade implications for data, processes, and APIs. | "About data, process, and API compatibility" on page 12 |
| (In-place) Reuse or patch the existing application server instance to ensure that you have the most up-to-date version.<br><br>(Out-of-place) Install the appropriate operating system and application server versions. | "System requirements" on page 32 |
| Ensure that you have all the information about passwords, directory locations, and credentials that you need. | "Gathering required information before you start" on page 20 |
| Back up all LiveCycle ES (8.x) data, resources, directories. | "Backing up the existing LiveCycle ES (8.x) environment" on page 20 |
| Install LiveCycle ES2. | *Upgrading to LiveCycle ES2 from 8.x* for your application server |
| Run LiveCycle Configuration Manager to configure LiveCycle ES2 and upgrade from LiveCycle 8.x. | • *Upgrading to LiveCycle ES2 from 8.x* for your application server<br>• LiveCycle Configuration Manager Help (Press F1 on the LiveCycle Configuration Manager screen) |

# 2 Understanding the Changes in LiveCycle ES2

To successfully upgrade to LiveCycle ES2 from LiveCycle ES (8.x), you must first understand which parts of your IT organization are involved. This section provides the high-level information that is required to plan for your upgrade.

## 2.1 How the LiveCycle ES2 upgrade protects your IT investment

The upgrade to LiveCycle ES2 is designed to provide an automated experience with minimal manual tasks. It continues to protect your investment in the forms, processes, and applications that you have built around LiveCycle. By protecting that investment, an IT administrator can upgrade to LiveCycle ES2 without help from the form authors who created your forms, the process authors who created your processes, and the Java™ developers who created custom applications for LiveCycle 7.x or LiveCycle ES (8.x).

The LiveCycle upgrade limits the changes so that they affect only the middle tier of your enterprise infrastructure. If you are using Adobe Reader® with LiveCycle, your organization can continue to use the existing version of Adobe Reader that you deployed across your clients. Keeping the LiveCycle upgrade restricted to your middle tier minimizes the disruption to the remainder of your enterprise infrastructure.

## 2.2 Adobe Reader compatibility

One of the key features of the upgrade is that the version of Adobe Reader on the client is independent of the version of LiveCycle on the server. When LiveCycle ES2 renders a form, it renders it in the version of PDF that you specify. You can create forms that work best in Adobe Reader 8.x, or you can use new features that work best with Adobe Reader 9.x. Form authors are warned if they choose to use a feature that is not appropriate for the particular version of Adobe Reader.

All forms render in LiveCycle ES2 in the same way that they rendered in previous versions of LiveCycle. All the scripts that you added to your forms will work in LiveCycle ES2. In addition to the LiveCycle ES2 features that support multiple versions of Adobe Reader, Adobe Reader itself also works with multiple versions of LiveCycle. You can roll out Adobe Reader 9.3 to your clients without upgrading your server.

## 2.3 Compatibility between LiveCycle ES2 and LiveCycle 8.x

When you upgrade your LiveCycle software, you maintain compatibility on a number of levels:

● Data, processes, and configuration settings are compatible.

● Most APIs are compatible, without requiring developers to recompile their applications.

● Electronic forms and form clients are compatible.

### 2.3.1 About data, process, and API compatibility

On the server, all data is migrated automatically so that it is available in LiveCycle ES2. For example, all historical process data continues to be available so that users can run queries that span the upgrade. The configuration information that LiveCycle ES2 requires is migrated from the earlier version of LiveCycle 8.x.

Processes that are developed in or updated to LiveCycle ES (8.x) run natively in LiveCycle ES2. Long-running processes will resume after the upgrade. For example, if you created a process that helps your business conform to a government regulation, the process will work in LiveCycle ES2 as you originally designed it. For these and all other processes that come from the previous LiveCycle system, end users can continue to log in to LiveCycle Workspace ES2 and see all the processes in the state that they left them. Many of the services that processes use are automatically updated to the new versions to ensure that your environment is up-to-date with bug fixes and functionality enhancements.

If you originally upgraded to LiveCycle ES (8.x) from LiveCycle 7.x and you are still running some LiveCycle 7.x processes or applications, they will continue to run in LiveCycle ES2. You will only need to install the LiveCycle 7.x compatibility layer during configuration.

**Note:** LiveCycle ES2 is the last release that supports LC 7.0 and LC 7.2 client applications, APIs, and QPACs. To ensure that your LC 7.0 or LC 7.2 based applications work with LiveCycle ES3 or later, you must rewrite the applications using LiveCycle ES2 APIs.

Changes to database schema in LiveCycle ES2 are kept to a minimum. Any changes in schema are automatically handled during the upgrade, and data is automatically migrated.

Most APIs that are used with LiveCycle ES (8.x) are compatible with LiveCycle ES2. For details about the APIs that are deprecated or updated, see *Upgrading Applications to LiveCycle ES2 Using APIs*.

## 2.3.2  Form and client compatibility

Adobe has placed top priority on separating the LiveCycle server from the Adobe Reader client. This separation now gives your IT organization the flexibility to decide when to upgrade your client, independent of the server. As a result, forms that were developed for use with Adobe Reader 7.0 are still compatible with LiveCycle ES2.

In addition, forms that you developed for LiveCycle 8.x work as designed with Adobe Reader 9.3 and LiveCycle ES2. When users open LiveCycle 8.x forms in Adobe Reader 9.3, the PDF version will not be incremented unless the form uses new features that are specific to Adobe Reader 9.3. Forms that have a flowable layout will render the same way in Adobe Reader 9.3 as they did in earlier versions.

# 2.4  Overview of the upgrade process

Upgrading from LiveCycle ES (8.x) to LiveCycle ES2 installs LiveCycle software that is subsequently configured using settings from the existing 8.x server. Configuration settings, user data, and job information are migrated to the LiveCycle ES2 system.

Most of the tasks in the upgrade process are automated and performed (with some user input) by LiveCycle Configuration Manager. *LiveCycle Configuration Manager* is a wizard-like tool used to configure, deploy, and validate LiveCycle ES2 components for deployment to the application server. When run in upgrade mode, LiveCycle Configuration Manager also performs upgrade tasks such as updating configuration settings and data. LiveCycle Configuration Manager can also apply a compatibility layer to ensure backward-compatibility with existing custom applications that were developed in LiveCycle 7.x, if applicable.

Some upgrade tasks are manual; they need to be performed by an administrator. These tasks include the environment preparation tasks that are described in this document, such as backing up the existing server environment and related files, and patching application servers if necessary.

If you previously upgraded from LiveCycle 7.x and are installing the 7.x compatibility layer, ensure that you have access to the LiveCycle ES (8.x) EAR files from the upgraded deployment; these are required during the upgrade process. The EAR files are required for configuration settings that are related to the compatibility layer. All other configurations are maintained because they were added to the database when LiveCycle 7.x was originally upgraded.

The LiveCycle ES (8.x) GDS directory (or moved contents), lccs_data (if applicable), and database must be accessible to LiveCycle Configuration Manager during the upgrade process. LiveCycle Configuration Manager would require access to the LiveCycle ES (8.x) EAR files only if your LiveCycle ES (8.x) server was previously upgraded from LiveCycle 7.x.

You can continue to use your existing database if it is a version that is compatible with LiveCycle ES2. If your current database version is no longer supported, back up the data and restore it to a compatible version.

If you are not changing major application server version and are doing an in-place upgrade, your existing application server must be running to deploy the new EAR files. For all other upgrades, the old application server does not need to run during the process.

## 2.4.1  Upgrading to LiveCycle ES2 using LiveCycle Configuration Manager

Upgrading to LiveCycle ES2 modules from LiveCycle ES (8.x) involves these tasks:

1. Prepare your environment for upgrading. See .

2. Installing LiveCycle ES2 product files.

3. Running LiveCycle Configuration Manager to initiate the configuration, upgrading, and deployment process. The remaining steps (below) are included in this process.

4. Extracting configuration settings and data from the LiveCycle ES (8.x) EAR files and applying them to the LiveCycle ES2 EAR files and database.

   **Note:** This task is required only if the LiveCycle ES (8.x) server was upgraded from LiveCycle 7.x or you are installing the LiveCycle 7.x compatibility layer.

5. Applying a compatibility layer to the LiveCycle ES2 EAR files. The compatibility layer comprises a set of deprecated Enterprise JavaBeans™ (EJBs), classes, servlets, and CORBA APIs that support custom applications developed with LiveCycle 7.x. The compatibility layer enables these legacy applications to continue to work with LiveCycle ES2. Application of the compatibility layer is optional when installing or upgrading from LiveCycle 8.x without having done a previous upgrade from LiveCycle 7.x.

6. Updating and deploying LiveCycle ES2 EAR files to the application server.

   **Note:** For an in-place upgrade, you must manually undeploy the EAR files from the application server.

7. Starting LiveCycle ES2 on the application server so that it is available to accept user requests. This is done automatically after the EAR files are deployed. However, you must start the server manually if it doesn't start automatically.

8. Initializing the LiveCycle ES2 database so that LiveCycle ES2 specific schema changes are incorporated in the database without affecting the existing data.

**Note:** This step is mandatory and must not be skipped during an upgrade. It does not affect existing data in any way.

9.  Patching LiveCycle ES2 components that are already deployed to the server.

10. Migrating to the database, essential data, as well as all remaining data, such as audit records that are submitted or historical data that are associated with LiveCycle Process Management ES.

# 2.5  Upgrading a system previously upgraded from LiveCycle 7.x

If you are upgrading from a LiveCycle ES (8.x) installation that was previously upgraded from LiveCycle 7.x, and you are still using applications based on the LiveCycle 7.x processes and APIs, special considerations are required for upgrading to LiveCycle ES2.

● LiveCycle ES (8.x) EAR files must be available to provide data to the LiveCycle ES2 server.

● LiveCycle 7.x compatibility layer is included with LiveCycle ES2 so that you can continue to work with applications that were developed using LiveCycle 7.x.

**Caution:** LiveCycle ES2 is the last release to support QPACs. To ensure future compatibility, processes using QPACs must be upgraded using the Process Upgrade Tool that is available in LiveCycle Workbench ES2.

For information about the files required, see <u>"Providing the LiveCycle ES (8.x) EAR files" on page 20</u>.

## 2.5.1  Installing the LiveCycle 7.x compatibility layer

The compatibility layer consists of the Enterprise JavaBeans (EJBs), classes, servlets, and CORBA APIs that are deprecated in LiveCycle ES2 but are used by custom applications that were developed for LiveCycle 7.x. When present in the LiveCycle ES2 deployment, the compatibility layer ensures that custom applications that were developed for LiveCycle 7.x continue to work with LiveCycle ES2.

**Note:** The contents of the compatibility layer are deprecated and included for backward compatibility only. It is required only if you did not upgrade LiveCycle 7.x-based processes and applications to run natively in LiveCycle ES (8.x).

The APIs that are exposed in LiveCycle 7.x remain compatible in LiveCycle ES2. During the upgrade process, a compatibility layer is inserted into LiveCycle ES2 so that you can use your existing code with LiveCycle ES2. The Java methods that you used in LiveCycle 7.x are maintained, the web service calls are present at the same URL, and all other programmatic methods of access that exist in LiveCycle 7.x persist. The compatibility layer ensures that your organization do not need developers to upgrade your LiveCycle 7.x applications to LiveCycle ES2.

For information about how upgrading to LiveCycle ES2 affects existing applications at the API level, see *Upgrading Applications to LiveCycle ES2 Using APIs*.

## 2.5.2  Upgrading LiveCycle 7.x QPACs

If you previously upgraded from LiveCycle 7.x and are using processes based on QPACs, you can upgrade LiveCycle QPACs. The Process Upgrade tool is available within LiveCycle Workbench ES2 to automate the QPAC upgrade. LiveCycle 7.x QPACs can run in LiveCycle ES2 without modifications so that you can run the QPAC upgrade tool when you are ready.

**Caution:** LiveCycle ES2 is the last release to support QPACs. To ensure future compatibility, processes using QPACs must be upgraded using the Process Upgrade Tool that is available in LiveCycle Workbench ES2.

You must also perform some manual configuration updates on the processes that were upgraded by using the Process Upgrade Tool. (See "Upgrading processes" in *Creating Processes Using Workbench ES2 Help*.)

# 2.6  Updating client libraries

### JBoss Application Server

If your custom applications use JAR files (client-libs) that are specific to JBoss, ensure that the JBoss-specific client-lib files are also updated within the custom applications to avoid seeing any issues while using the client.

**Note:** This task is required only if you are changing the version of JBoss you have installed. If your existing JBoss instance is version 4.0.3, you will need to perform this update as LiveCycle ES2 does not support that version.

The JBoss client libraries are located in the //third_party/*[jboss_version]*/client directory on the LiveCycle ES2 installation media (DVD or ESD).

### WebLogic Server

For WebLogic, include the full WebLogic client JAR file in the classpath of new application server. If your client applications run on version 5 of the JDK, they use a different JAR file. You must build the client JAR file manually. Follow the steps in the article *Programming Stand-alone Clients* to generate the full WebLogic client JAR file.

### General Issues

If your custom applications use the LiveCycle ES (8.x) adobe-livecycle-client.jar file, you will see the following exception in your application server logs after upgrade:

```
java.io.FileNotFoundException: Response: '403: Forbidden' for url:
'http://localhost:8080/DocumentManager'
```

To avoid these errors when running your custom applications, do one of the following tasks:

- Replace the LiveCycle ES (8.x) adobe-livecycle-client.jar file used in your custom application with the LiveCycle ES2 adobe-livecycle-client.jar file located in *[LiveCycleES2 root]*/LiveCycle_ES_SDK/client-libs/common

- Log in to LiveCycle Administration Console (for LiveCycle ES2) and click **Settings > Core System > Core Configurations**. Select the options **Allow non secured document upload from Flex applications** and **Allow non secured document upload from Java SDK applications**, click **OK** and restart your application server.

# 2.7  Upgrading the LiveCycle ES (8.x) Connectors for ECM

Upgrading the LiveCycle ES (8.x) Connector for EMC Documentum, Connector for IBM FileNet or Connector for IBM Content Manager is supported in two scenarios:

- If your current ECM is a version supported in LiveCycle ES2, you can upgrade without any issues.

- If your current ECM is an older, unsupported version, run the LiveCycle ES2 upgrade first, skipping the Form Template Import step. Once LiveCycle ES2 is installed and configured, you can then upgrade your

ECM to a supported version and rerun LiveCycle Configuration Manager to import the form templates and configure the new ECM.

For example, if LiveCycle ES (8.x) Connector for IBM FileNet was running on IBM FileNet P8 Content Engine 4.0.x, Connector for IBM FileNet must still be running on FileNet P8 Content Engine 4.0.x during the upgrade to LiveCycle ES2.

**Note:** If the ECM content server is upgraded before Connector for IBM FileNet or Connector for EMC Documentum is upgraded to LiveCycle ES2, run-time configuration information for LiveCycle ES (8.x), such as shared locks on the resources, will not be available and migrated to LiveCycle ES2.

See "LiveCycle ES2 connector" in <u>"Supported software" on page 37</u> to verify supported ECM versions.

# 3 | Preparing Your Environment for Upgrading

Before you begin the upgrade process, you must perform several tasks to prepare your environment for upgrading:

- Upgrade your infrastructure by applying the latest patches to your application server or by preparing a new application server instance, if required.

- Back up the existing LiveCycle ES (8.x) environment.

- Back up the LiveCycle ES (8.x) EAR files, if applicable (if you originally upgraded from LiveCycle 7.x and are still running LiveCycle 7.x components on the server or are installing the LiveCycle 7.x compatibility layer).

- Remove the LiveCycle ES (8.x) samples.

## 3.1 The LiveCycle ES2 upgrade work flow

This section provides an overview of the tasks required to perform an upgrade.

1. Determine if your existing LiveCycle ES (8.x) platform (that is, application server, database, operating system, or hardware) is supported in LiveCycle ES2. (See "Supported LiveCycle ES (8.x) platforms for in-place upgrade" on page 25.)

   - If yes, apply any necessary updates (such as service packs or patches) and perform the remaining preparatory steps for an in-place upgrade. (See "Supported software" on page 37.)

   - If no, determine which supported LiveCycle ES2 platform combination best suits your needs. (See "Supported software" on page 37.) Update the system as required for an out-of-place upgrade (install new software or hardware and patch any compatible software, if needed) and then perform the remaining preparatory steps using the *Preparing to Install* guide.

2. Log in to your existing LiveCycle Administration Console and take note of the locations and settings for the global document storage (GDS), and LiveCycle fonts.

3. Stop the LiveCycle ES (8.x) server. Wait until all long-lived processes have stopped (or stop them manually, if necessary), and then proceed to perform a cold backup of your LiveCycle ES (8.x) server.

   The following LiveCycle data must be included in your back up:

   **GDS directory:** This directory can reside either locally or on a shared network drive.

   **Database:** Use the database backup utility to perform database backup. If your current database version is no longer supported, you must also migrate your data to the new LiveCycle ES2 database.

   **LiveCycle ES (8.x) EAR files:** You will need to point LiveCycle Configuration Manager to the location of these files during upgrade. If you upgraded from LiveCycle 7.x, the related information is

extracted from these files during configuration. As well, these files are required to restore your system if you encounter upgrade issues.

**Content Storage Root directory:** If you have Content Services ES deployed on your current system, back up the lccs_data directory. This directory can reside either locally or on a shared network drive.

**LiveCycle fonts:** Back up all Adobe and System font directories that are specified in LiveCycle Configuration Manager (go to Settings > Core System > Configurations). Ensure that you back up the entire directory.

**Customer installed fonts:** If you installed additional fonts on your LiveCycle ES (8.x) environment, back them up separately.

If you are changing computers during upgrade and if your watched folders have files that are still in process, you can back them up and copy them to the computer after a successful upgrade.

**Note:** On a clustered Content Services ES environment, back up the lucene-indexes on each node of the cluster.

4.  Set the JAVA_HOME and other application server settings as required by LiveCycle ES2. (See "System requirements" on page 32.)

5.  Check that contents of the LiveCycle ES2 install DVD or electronic software download (ESD) is not corrupted and unpackage the archive files to a local drive. (See "Checking the installer" in the *Upgrading to LiveCycle ES2 from 8.x* guide for your application server.)

6.  (LiveCycle ES (8.x) Connectors for ECM only) If your system includes LiveCycle ES Connector for EMC Documentum, IBM FileNet, or IBM Content Manager, first verify if your current ECM version is supported in LiveCycle ES2.

    ●  If your LiveCycle ES (8.x) installation has ECM Connectors and you plan to upgrade this installation to LiveCycle ES2, then follow the upgrade procedure best suited for your ECM Connectors' setup. See Upgrading ECM Connectors from LiveCycle ES (8.x) to LiveCycle ES2, for more information.

    ●  Configure any additional requirements for your ECM as described in "System requirements" on page 32.

7.  Copy the backed up LiveCycle ES (8.x) data as follows:

    ●  For an in-place upgrade or an out-of-place upgrade on the same computer, ensure that the LiveCycle ES (8.x) EAR files, and the GDS and Content Storage Root directories are all accessible by the LiveCycle ES2 installer.

    ●  For an out-of-place upgrade on a different computer, copy the LiveCycle ES (8.x) EAR files, and the GDS and Content Storage Root directories to the new computer.

    ●  If you are upgrading from current database version to a higher version, you must migrate your backed up LiveCycle ES (8.x) data to the new LiveCycle ES2 database.

8.  Run the LiveCycle ES2 installer to proceed with the upgrade following the instructions in the *Upgrading to LiveCycle ES2 from 8.x* guide for your application server.

**Note:** During configuration, LiveCycle Configuration Manager will prompt you for the locations of the EAR files and the backed up LiveCycle ES (8.x) data.

9.  Finish the upgrade by performing all required post-deployment configurations described in the *Upgrading to LiveCycle ES2 from 8.x* guide for your application server.

## 3.2  Upgrading your infrastructure

Some platforms that are supported in LiveCycle ES (8.x) continue to be supported in LiveCycle ES2. However, because LiveCycle ES2 supports the latest versions of application servers, you may need to apply the latest patch to your application server.

**Note:** When supported, it is recommended that you apply application server patches and continue to run the updated application server for a period of time before you upgrade LiveCycle ES (8.x). This approach helps ensure that the application server is running correctly when you are ready to upgrade.

For details about supported platforms, see "System Requirements" on page 25.

## 3.3  Backing up the existing LiveCycle ES (8.x) environment

Before you start the upgrade process, you must back up all the files and directories that are associated with the LiveCycle ES (8.x) deployment, including the Java SDK, installation files, watched folder contents. You must use cold backup strategies to backup your existing LiveCycle ES (8.x) environment.

## 3.4  Providing the LiveCycle ES (8.x) EAR files

If you are upgrading from a LiveCycle ES (8.x) installation that was previously upgraded from LiveCycle 7.x, or if you are installing the LiveCycle 7.x compatibility layer, you must import the LiveCycle ES (8.x) EAR files. Some configuration information stored in these EAR files was not saved in the LiveCycle ES (8.x) database and is required by the LiveCycle ES2 server.

**Note:** This procedure is not required if you upgraded from LiveCycle Policy Server only.

The following list includes all the possible archive files that must be imported during the upgrade process.

**LiveCycle Core EAR file:** adobe-livecycle-<appserver>.ear (for example, adobe-livecycle-jboss.ear)

**LiveCycle Native EAR file:** adobe-livecycle-native-<appserver>-<operating system>.ear (for example, adobe-livecycle-native-jboss-x86_win32.ear)

**Note:** For a 64-bit operating system, this string will continue to show as if it were a 32-bit operating system. This is normal and can be ignored.

## 3.5  Gathering required information before you start

This section serves as a checklist for the information that you need during the upgrade process. During the upgrade, you will be instructed or prompted to provide this information. If you ensure that it is available before you begin, you can speed up the process and minimize any server downtime.

### 3.5.1  Determining the JNDI port

Provide JNDI port information for your application server (JBoss, WebLogic, or WebSphere) and listener port for your database.

If you are not sure which ports the database use, contact your database administrator.

➤ **Determine the JNDI port for JBoss 4.2.x:**

1. Navigate to the *[jboss_root]*/server/all/conf directory and open the jboss-service.xml file.

2. Find the `<mbean code="org.jboss.naming.NamingService">` element. The JNDI server port is the value of the `<attribute name="Port">` element.

➤ **Determine the JNDI port for WebSphere 6.1:**

1. Log in to the WebSphere Administrative Console.

2. In the navigation tree, click **Servers** > **Application Servers** > *[server_name]* **> Ports**, and find the value of bootstrap_address.

➤ **Determine the JNDI port for WebSphere 7.0:**

1. Log in to the WebSphere Administrative Console.

2. In the navigation tree, click **Servers** > **Server Types > WebSphere application servers**.

3. On the right pane, click the server name.

4. Under Communications, click **Ports**, and find the value of bootstrap_address.

**Note:** For WebLogic, the JNDI server port is usually the same as for the server that is created to host LiveCycle ES2. If a Managed Server is configured for deployment of LiveCycle ES2, the JNDI port should be the port used by the Managed Server.

### 3.5.2 Server names

If you are installing the LiveCycle ES2 product files and running LiveCycle Configuration Manager from a different computer than the target LiveCycle ES2 server, you must know the server name of the system that LiveCycle ES2 will be deployed on.

# 3.6  Export and backup Business Activity Monitoring ES2 metadata

This task is required only if you are upgrading an existing LiveCycle Business Activity Monitoring ES2 ES (version 8.x) installation.

**Note:** If this is the first time you are including Business Activity Monitoring ES2 in your LiveCycle environment, upgrade to LiveCycle ES2 first and then install Business Activity Monitoring ES2 using the LiveCycle ES2 installer for your application server. (See the appropriate *Installing and Deploying LiveCycle ES2* guide)

Before you begin upgrading your Business Activity Monitoring ES2 environment, export the metadata so that the customized BAM objects are available to be imported into LiveCycle ES2. This applies customized objects only - do not export auto-generated objects. If you installed BAM Server manually, you must uninstall it manually as well.

➤ **Export the BAM Server metadata:**

1. In a browser, type http://*[hostname]*:*[BAM port]*/bam/workbench and log in to BAM Workbench.

2.  Click **Application Workbench > Event.**

3.  Select all events except for VC_SYSTEM_EVENTS, VC_TASK_EVENTS and your customized events.

4.  Click **Delete Event**(s) and then click **Delete Dependencies** when prompted.

5.  Delete all views except for VC_SYSTEM_VIEW, VC_TASK_VIEW and your customized views.

6.  Click **Delete View**(s) and then click **Delete Dependencies** when prompted.

7.  Repeat steps 5 and 6 for Contexts, Dimensions and Cubes, substituting the appropriate VC_SYSTEM_<>, VC_TASK_<> objects.

8.  Delete all JAR files except for your customized JAR files. Click **Delete This Jar...** and then click **Delete Dependencies** when prompted.

9.  Click the **Administration Console** tab and click **Import/Export**.

10. When prompted, choose **Export Metadata to a JAR file on the server**, enter the server location and click **OK**.

   **Note:** Save the exported JAR file to a location available to the LiveCycle ES2 installer.

11. Stop the application server and delete the 3 tables in BAM metadata database.

## 3.7  Uninstalling the BAM Server manually

Refer to the "Uninstalling Business Activity Monitoring" section in the *Installing and Deploying LiveCycle ES2* guide for your application server.

## 3.8  Removing the LiveCycle ES (8.x) Samples

The LiveCycle ES (8.x) Samples should be removed manually through the LiveCycle Administration Console before you upgrade.

➤ **To remove the LiveCycle ES (8.x) Samples manually:**

1.  Log in to LiveCycle Administration Console and click **Home** > **Services** > **Applications and Services** > **Archive Management**.

2.  Delete all the samples in the "Samples to delete" list below.

**Caution:** Do not delete the following samples

  - Samples - Forms - Render Form Guide
  - Samples - Forms - Render HTML Form
  - Samples - Forms - Render PDF Form
  - Samples - Forms - Submit Form Guide
  - Samples - Forms - Submit HTML Form
  - Samples - Forms - Submit PDF form

**LiveCycle ES (8.x) Samples to delete**

- Samples - Data Services - CreateMortgageApplication

- Samples - Reader Extensions - CreateBarCodedForm

- Samples - Reader Extensions - ReviewAndCommenting

- Samples - Reader Extensions - DynamicallyApplyRights

- Samples - Barcoded Forms - RouteOnDataEntry

- Samples - Barcoded Forms - RouteOnFormType

- Samples - Digital Signatures - Verify Digital Signatures

- Samples Forms - DataExtractionAndApplyXSLT

- Samples Forms - DataExtractionAndUpdateDB

- Samples Forms - DataLookup

- Samples Forms - PrePopulateLDAPQuery

- CreateCustomerAndBankAccount-03-07-2007-1702

- SendEmail-03-07-2007-1701

- Samples - Events - EventCorrelation

- Samples - Events - EventCorrelationStartPoint

- Samples - Events - EventGenerationandReceipt

- Samples - Events - Timeout

- Samples - Foundation - JDBC

- Samples - Foundation - E-mail

- Samples - Foundation - FileSystem

- Samples - Foundation - File Transfer Protocol (FTP)

- Samples - Foundation - JMS

- Samples - Foundation - LDAP

- Samples - Foundation - Variable Logger

- Samples - Foundation - Web Service

- Samples - Foundation - XSLT

- Samples - RightsManagement - ApplyPolicy

- Samples - RightsManagement - RegisterApplyPolicy

- Samples - RightsManagement - RevokeOnPrint

- Sample - PDF Generator - ConvertAllFileTypesToPDF

- Sample - PDF Generator - ConvertTiffToPDF

- Sample - PDF Generator - FilterLogFileInPSToPDFConversion

- Samples Output - FaxDetailsInMetaData

- Samples Output - LetterWithAttachment

- Samples Output - RenderTemplateInMultipleFormats

- Samples - ConnectorforEMCDocumentum - ArchiveSubmittedData-Documentum

- Samples - ConnectorforEMCDocumentum - AssemblePDFAndArchiveToECM-Documentum

- Samples - ConnectorforEMCDocumentum - RenderFormsFromSubmittedData-Documentum
- Samples - ConnectorforEMCDocumentum - RenderReaderEnabledFormsWithData-Documentum
- Samples - ConnectorforEMCDocumentum - MortgageLoan-Documentum
- Samples - ConnectorforIBMFileNet - ArchiveSubmittedData-Filenet
- Samples - ConnectorforIBMFileNet - AssemblePDFAndArchiveToECM-Filenet
- Samples - ConnectorforIBMFileNet - RenderFormsFromSubmittedData-Filenet
- Samples - ConnectorforIBMFileNet - RenderReaderEnabledFormsWithData-Filenet
- Samples - ConnectorforIBMFileNet - MortgageLoan-Filenet
- Samples - [LiveCycle 8.x version]- AcceptanceConfirmation
- Samples - [LiveCycle 8.x version] - Dynamic Document Generation
- Samples - [LiveCycle 8.x version] - End-To-EndMortgageApplication
- Samples - [LiveCycle 8.x version] - End-To-EndMortgageApplicationGenerateCreditCheck
- Samples - [LiveCycle 8.x version] - End-To-EndMortgageApplicationReceiveAgreement
- Samples - [LiveCycle 8.x version] - MortgageLoan - Prebuilt
- Samples - [LiveCycle 8.x version] - SecureFormCreation
- Samples - [LiveCycle 8.x version] - SimpleMortgageLoan - Flex
- Samples - [LiveCycle 8.x version] - SimpleMortgageLoan-FormGuide
- Samples - [LiveCycle 8.x version] - SimpleMortgageLoan-HTML
- Samples - [LiveCycle 8.x version] - SimpleMortgageLoan-PDF

# 4 System Requirements

## 4.1 In-place or Out-of-place upgrades

**In-place upgrades:** If you are upgrading a WebSphere 6.1 system, apply the latest Fix Packs from IBM. If you are upgrading a JBoss 4.2.0 system, it can be used as is with some minor modifications to the persistence.properties file. (See *"Updating JBoss 4.2.0 for LiveCycle ES2" on page 26*.)

**Out-of-place upgrades:** If you are performing an out-of-place upgrade, prepare the application server according to the instructions in the *Preparing to Install LiveCycle ES2* document.

When you are ready to upgrade to LiveCycle ES2, refer to the following document for instructions on performing the upgrade:

- *Upgrading to LiveCycle ES2 from 8.x for JBoss*
- *Upgrading to LiveCycle ES2 from 8.x for WebSphere*
- *Upgrading to LiveCycle ES2 from 8.x for WebLogic*
- *Upgrading to LiveCycle ES2 for JBoss Turnkey from 8.x*

### 4.1.1 Supported LiveCycle ES (8.x) platforms for in-place upgrade

If your current LiveCycle ES (8.x) system is not on this list, you will perform an out-of-place upgrade to a supported combination.

| Operating System | App Server | Database | Hardware |
|---|---|---|---|
| AIX 5.3 | WebSphere 6.1.0.7 | DB2 8.2 / 9.1 | 64bit |
| AIX 5.3 | WebSphere 6.1.0.7 | Oracle 10g / 9i | 64bit |
| Red Hat EL Server & AP 5 | JBoss 4.2.0 | Oracle 10g / 9i | x86/64 |
| Red Hat EL Server & AP 5 | JBoss 4.2.0 | MySQL 5.0.18 or higher 5.0.x | x86/64 |
| Red Hat EL Server & AP 5 | WebSphere 6.1.0.7 | DB2 8.2 / 9.1 | x86/64 |
| Red Hat EL Server & AP 5 | WebSphere 6.1.0.7 | Oracle 10g / 9i | x86/64 |
| Solaris 10 | JBoss 4.2.0 | Oracle 10g / 9i | 64bit |
| Solaris 10 | WebSphere 6.1.0.7 | DB2 8.2 / 9.1 | 64bit |
| Solaris 10 | WebSphere 6.1.0.7 | Oracle 10g / 9i | 64bit |
| Windows Server 2003 SP2 & R2 SP2 | JBoss 4.2.0 | MS SQL Server 2005 SP3 | x86/64 |
| Windows Server 2003 SP2 & R2 SP2 | JBoss 4.2.0 | MySQL 5.0.18 or higher 5.0.x | x86/64 |
| Windows Server 2003 SP2 & R2 SP2 | JBoss 4.2.0 | Oracle 10g / 9i | x86/64 |

| Operating System | App Server | Database | Hardware |
| --- | --- | --- | --- |
| Windows Server 2003 SP2 & R2 SP2 | WebSphere 6.1.0.7 | DB2 8.2 / 9.1 | x86/64 and VMWare ESX |
| Windows Server 2003 SP2 & R2 SP2 | WebSphere 6.1.0.7 | MS SQL Server 2005 SP3 | x86/64 and VMWare ESX |
| Windows Server 2003 SP2 & R2 SP2 | WebSphere 6.1.0.7 | Oracle 10g / 9i | x86/64 and VMWare ESX |

### 4.1.1.1 Updating JBoss 4.2.0 for LiveCycle ES2

1. Locate the [appserver root]/server/all/deploy/ejb3.deployer/META-INF/persistence.properties file and open it in an editor.

2. Locate the `hibernate.bytecode.provider` property.

3. Change the value from `javassist` to `cglib` so that the property looks like this:

   ```
   hibernate.bytecode.provider=cglib
   ```

4. Save and close the file.

# 4.2 LiveCycle ES2 patch updates

Before you install LiveCycle ES2, ensure that you download any required patch updates, which are located at LiveCycle Technical Support.

# 4.3 Third-party infrastructure support

## 4.3.1 Third-party patch support

The third-party reference platforms described in this document represent a specific patch level of third-party infrastructure that was current during the development and release of this version of Adobe LiveCycle ES2.

To review Adobe's policy regarding third-party patch support and software compatibility, see the knowledgebase article *Adobe LiveCycle Third-party Patch Support Policy*.

## 4.3.2 Microsoft Windows operating systems

LiveCycle ES2 supports the following Microsoft Windows operating systems:

- Windows Server 2008 Standard and Enterprise Edition R2 (64-bit)

- Windows Server 2008 Standard and Enterprise Edition SP1 and later (64-bit) and VMWare ESX/GSX architectures

- Windows Server 2003 Standard and Enterprise Edition SP2 and later (32-bit and 64-bit)

- Windows Server 2003 R2 Standard SP2 and later (32-bit and 64-bit)

- Windows Server 2003 R2 Enterprise Edition SP2 and later running on 32-bit, 64-bit, and VMWare ESX/GSX architectures

**Note:** LiveCycle ES2 Server is supported in non-production environment on Microsoft Windows XP (SP2 or SP3), Windows Vista (SP1, all flavors, 32-bit and 64-bit), and Windows 7 (32-bit and 64-bit). However, these operating systems are supported for LiveCycle clients and for installing LiveCycle developer tools.

**Note:** LiveCycle Business Activity Monitoring ES2 is not supported on 32-bit systems; deploy Business Activity Monitoring ES2 on a 64-bit system.

## 4.3.2.1  Windows Server 2008

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | <ul><li>MySQL 5.1.30</li><li>Microsoft SQL Server 2005 SP3, 2008</li><li>Oracle 10g, 11g R2</li></ul> |
| Oracle WebLogic 10g R3 (Standard & Enterprise editions) | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | <ul><li>MySQL 5.1.30</li><li>IBM DB2 9.1 or later versions of 9.x</li><li>Oracle 10g, 11g R2</li><li>Microsoft SQL Server 2005 SP3, 2008</li></ul> |
| **\*New for 9.0.0.2\***<br>Oracle WebLogic 11g R1 - 10.3.3 | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | <ul><li>MySQL 5.1.30</li><li>IBM DB2 9.1 or later versions of 9.x</li><li>Microsoft SQL Server 2005 SP3, 2008</li><li>Oracle 10g, 11g R2</li></ul> |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployement Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | <ul><li>IBM DB2 9.1 or later versions of 9.x</li><li>Oracle 10g, 11g R2</li><li>MS SQL Server 2005 SP3, 2008</li></ul> |

**Note:** When using PDF Generator ES2 with a 64-bit application server, an additional 32-bit JVM must also be installed.

### 4.3.2.2  Windows Server 2003

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| Red Hat JBoss Application Server 4.2.0 | Sun JDK 5.0 update 11 or later updates to 5.0 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30<br>• Microsoft SQL Server 2005 SP3, 2008<br>• Oracle 10g, 11g R2 |
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 32-bit OS and 32-bit JVM | • MySQL 5.1.30 |
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | • Microsoft SQL Server 2005 SP3, 2008<br>• Oracle 10g, 11g R2<br>• MySQL 5.1.30 |
| Oracle WebLogic 10g R3 (Standard & Enterprise editions) | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30<br>• IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2<br>• Microsoft SQL Server 2005 SP3, 2008 |
| **\*New for 9.0.0.2\***<br>Oracle WebLogic 11g R1 - 10.3.3 | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30 |
| IBM WebSphere 6.1.0.21 (Base & Network Deployment Edition) | WebSphere Java SDK 1.5 SR8 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2<br>• Microsoft SQL Server 2005 SP3, 2008 |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2<br>• Microsoft SQL Server 2005 SP3, 2008 |

**Note:** When using PDF Generator ES2 with a 64-bit application server, an additional 32-bit JVM must also be installed. For a detailed list of supported software, see .

## 4.3.3  Linux operating systems

LiveCycle ES2 supports the following:

- Red Hat Enterprise Linux AP or ES 5 (Intel/AMD 64-bit architectures)
- SUSE Linux Enterprise Server 10.0 and 11.0 (Intel/AMD 64-bit architectures)

**Note:** PDF Generator 3D ES2 is not supported on non-Windows platforms.

**Note:** When using PDF Generator ES2 with a 64-bit application server, an additional 32-bit JVM must also be installed.

**Note:** On Linux operating systems, you must ensure that X Window libraries are installed. This is required for PDF Generator ES2 and Forms ES2. See documentation for your operating system for more information.

## 4.3.3.1 Red Hat Enterprise Linux

**Caution:** Ensure that the cURL, Xorg-x11-apps, and Compat-libstdc++ packages and all dependencies are installed on your Red Hat Linux computer to avoid problems when rendering forms.

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| Red Hat JBoss Application Server 4.2.0 | Sun JDK 5.0 update 11 or later updates to 5.0 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30<br>• Oracle 10g, 11g R2 |
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30<br>• Oracle 10g, 11g R2 |
| Oracle WebLogic 10g R3 (Standard & Enterprise editions) | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | • Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\***<br>Oracle WebLogic 11g R1 - 10.3.3 | Oracle JRockit® Real Time 3.1.2-1.6.0.14 | 64-bit OS and 64-bit JVM | • Oracle 10g, 11g R2 |
| IBM WebSphere 6.1.0.21 (Base & Network Deployment Edition) | WebSphere Java SDK 1.5 SR8 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |

## 4.3.3.2 SUSE Linux

**Note:** Ensure that X Window libraries are installed on your operating system. This is required for PDF Generator ES2 and Forms ES2. See documentation for your operating system for more information.

**Caution:** You must install the glibc-locale-32bit library that ships with SUSE Linux Enterprise Server or LiveCycle ES2 will not generate PDF files. This library file is not installed by default, you must use YaST to install it. (See the SUSE Linux Enterprise Server 10.0 documentation.)

**Note:** If you plan to install LiveCycle ES2 on SUSE Linux 11, you must also install the `libstdc++-libc6.2-2.so.3` libraries. SUSE Linux 11 does not include these libraries by default. For more information, see this Novell Web page. These libraries are required for running Adobe Central Pro Output Server

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30<br>• Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |

### 4.3.4  IBM AIX

LiveCycle ES2 supports AIX 5L 5.3 and AIX 6.1 (both 64-bit architecture).

**Note:** PDF Generator 3D ES2 is not supported on non-Windows platforms.

**Note:** Ensure that X Window libraries are installed on your operating system. This is required for PDF Generator ES2 and Forms ES2. See the documentation for your operating system for more information.

**Note:** For a detailed list of the supported platforms, see "Supported software" on page 37.

### 4.3.4.1  AIX 5.3

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| IBM WebSphere 6.1.0.21 (Base and Network Deployment Edition) | WebSphere Java SDK 1.5 SR8 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |

### 4.3.4.2  AIX 6.1

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| **\*New for 9.0.0.2\*** <br><br> IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x <br><br> • Oracle 10g, 11g R2 |

**Note:** For a detailed list of the supported database editions, see "Supported software" on page 37.

## 4.3.5  Sun Solaris

LiveCycle ES2 supports the Sun Solaris 10 (SPARC® architectures) operating system. See also "Additional requirements for AIX, Linux, and Solaris" on page 34.

**Note:** PDF Generator 3D ES2 is not supported on non-Windows platforms.

**Note:** Ensure that X Window libraries are installed on your operating system. This is required for PDF Generator ES2 and Forms ES2. See the documentation for your operating system for more information.

**Caution:** Do not use the Solaris `tar` command to extract files or errors (such as missing files) will occur. Download the GNU tar tool and use it to extract all files on a Solaris environment.

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| Red Hat JBoss Application Server 4.2.0 | Sun JDK 5.0 update 11 or later updates to 5.0 | 64-bit OS and 64-bit JVM | • Oracle 10g, 11g R2 |
| Red Hat JBoss Application Server 4.2.1 and JBoss Enterprise Application Platform 4.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | • MySQL 5.1.30 <br><br> • Oracle 10g, 11g R2 |
| Oracle WebLogic 10g R3 (Standard & Enterprise editions) | Sun JDK 6.0 update 7 | 64-bit OS and 64-bit JVM | • Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\*** <br><br> Oracle WebLogic 11g R1 - 10.3.3 | Sun JDK 6.0 update 14 or later updates to 6.0 | 64-bit OS and 64-bit JVM | • Oracle 10g, 11g R2 |

| Application server | JDK | OS/JVM architecture | Database |
|---|---|---|---|
| IBM WebSphere 6.1.0.21 (Base & Network Deployment Edition) | WebSphere Java SDK 1.5 SR8 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |
| **\*New for 9.0.0.2\***<br>IBM WebSphere 7.0.0.9 (Base and Network Deployment Edition) | WebSphere Java SDK 1.6 SR7 | 64-bit OS and 64-bit JVM | • IBM DB2 9.1 or later versions of 9.x<br>• Oracle 10g, 11g R2 |

**Note:** When using PDF Generator ES2 with a 64-bit application server, an additional 32-bit JVM must also be installed. For a detailed list of supported software, see "Supported software" on page 37.

## 4.4  System requirements

### 4.4.1  Minimum hardware requirements

This table provides the minimum hardware requirements that LiveCycle ES2 supports.

| Operating system | Minimum hardware requirement |
|---|---|
| Microsoft Windows Server® 2008 R1/R2 | Intel® Pentium® 4, 2.8 GHz processor or equivalent<br>VMWare ESX 3.0 or later<br>RAM: 4 GB<br>Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |
| Microsoft Windows Server® 2003 Enterprise Edition or Standard Edition SP2 and R2 (32- and 64-bit architectures) | Intel® Pentium® 4, 2.8 GHz processor or equivalent<br>VMWare ESX 3.0 or later<br>RAM: 3 GB (32-bit) or 4 GB (64-bit)<br>Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |
|  | RAM requirements if Business Activity Monitoring ES2 is deployed - 8 GB of RAM for heavy development; 16 GB of RAM for production environment; 2GB of RAM for evaluation |

| Operating system | Minimum hardware requirement |
|---|---|
| Sun Solaris 10 | UltraSPARC® IIIi, 1.5 GHz processor |
| | Solaris Containers (Zones) partitioning |
| | RAM: 3GB (64-bit OS with 64-bit JVM) |
| | Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |
| IBM AIX 5L 5.3 | P4 pSeries 615 (Model 6C3) 7029-6C3, 1.2 GHz processor |
| | LPAR partitioning |
| | RAM: 3GB (64-bit OS with 64-bit JVM) |
| | Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |
| SUSE Linux Enterprise Server 10.0 and 11.0 (64-bit edition only) | Dual core, 1 GHz processor |
| | VMWare ESX 3.0 or later |
| | RAM: 3GB (64-bit OS with 64-bit JVM) |
| | Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |
| Red Hat Enterprise Linux AP or ES 5 (64-bit edition only) | Dual core, 1 GHz processor |
| | VMWare ESX 3.0 or later |
| | RAM: 3GB (64-bit OS with 64-bit JVM) |
| | Free disk space: 5.4 GB of temporary space plus 3.4 GB for LiveCycle ES2 |

**Note:** LiveCycle Business Activity Monitoring ES2 is not supported on 32-bit systems; deploy Business Activity Monitoring ES2 on a 64-bit system. Even though the LiveCycle ES2 installer can install the Business Activity Monitoring ES2 file set on a 32-bit system, it fails during configuration.

## 4.4.2  Intel x86 compatibility

On supported Windows and UNIX -like environments, LiveCycle ES2 supports Intel and AMD64 compatible chipsets running either 32-bit or 64-bit supported operating systems.

## 4.4.3  Recommended hardware requirements

For a small production environment:

**Intel environments:** Pentium 4, 2.8 GHz or greater. Using a dual core processor will further enhance performance.

**Sun SPARC environments:** UltraSPARC V or later.

**IBM AIX environments:** Power4 or later

**Memory requirements:** 3.2 GB of RAM.

## 4.4.4  Additional requirements for AIX, Linux, and Solaris

**Caution:** On AIX, Linux, and Solaris operating systems, use binary mode when downloading the installer from Adobe web site.

### 4.4.4.1  Installing and configuring UTF-8

When installing LiveCycle ES2 on AIX, Linux, or Solaris operating systems, you must install and configure the US English version of UTF-8 locale if it is not already installed. You will need the install media (CDs or DVDs) for the operating system to perform this task.

**Note:** On Linux platforms, this locale is installed by default and is called en_US.utf8. It can be verified by using the `locale -a` command.

➤ **To install UTF-8 on AIX:**

1.  Verify the US English UTF-8 locale is not installed by typing `locale -a` in a command prompt. Verify that the command output does not contain the entry *EN_US.UTF-8*.

2.  Access the AIX SMIT utility (in text mode) by typing `smitty mle_add_lang` at the root in the command prompt.

3.  (AIX 5.3 and 6.1) On the screen that appears, select **UTF-8 US English (United States) [EN_US]** from both the **CULTURAL CONVENTION** and **LANGUAGE TRANSLATION** drop-down lists.

    **Note:** Keep the INPUT DEVICE/DIRECTORY as the default `/dev/cd0` setting.

4.  Press **Enter** to proceed. A message such as the following will appear:

    ```
    installp:  Device /dev/cd0 not ready for operation.
    Please insert media and press Enter to continue.
    ```

5.  Insert the appropriate AIX install disk in the disk drive.

6.  When the command is complete, exit the SMIT utility and type `locale -a` to verify that EN_US.UTF-8 is set as the locale.

➤ **To install UTF-8 on Solaris 10:**

1.  Verify the US English UTF-8 locale is not installed by typing `locale -a` in a command prompt. Verify that the command output does not contain the entry *EN_US.UTF-8*.

2.  Insert the Solaris install CD #1 in the disk drive and mount it to an appropriate location, for example: `/cdrom/sol_10_807_sparc/s0`

3.  Type the following command as root: `localeadm -a nam -d /cdrom/sol_10_807_sparc/s0`

    **Note:** This command installs all locales in the North America (nam) region even if you specify only the en_US.UTF-8 locale.

4.  When the command is complete, type `locale -a` to verify that EN_US.UTF-8 is set as the locale.

    **Note:** See this link for [FAQs on Solaris locales](#).

### 4.4.4.2  Configuring the file limit values on Solaris and Linux

To avoid StuckThread issues on a Solaris or Linux environment, add or increase the rlim values in the /etc/system file.

➤ **Modify the `rlim` values:**

1. (**Linux**) Locate and open the /etc/security/limits.conf file.

   (**Solaris**) Locate and open the /etc/system file.

2. (**Linux**) Add the following lines to the /etc/security/limits.conf file:

   `<app_group> soft nofile 8192`

   `<app_group> hard nofile 8192`

   Replace *<app_group>* with the user group who will run the application server. You may also replace *<app_group>* with an asterisk (**\***) to match all users and user groups.

   (**Solaris**) Locate and modify the `rlim` values in the /etc/system file as follows:

   `set rlim_fd_cur`: The initial (soft) maximum number of file descriptors per process. Set this value to `8192` or more.

   `set rlim_fd_max`: The hard maximum number of file descriptors per process. Set this value to `8192` or more. (This modification is required only if the default value is lower than 8192). You must have super user privileges to change this value.

   **Note:** The `rlim_fd_max` value must be equal to or greater than the `rlim_fd_cur` value.

3. Save and close the file.

4. Restart your computer.

➤ **Verify the updated settings:**

1. Launch a new shell.

2. Type `ulimit -n` and press **Enter**.

3. Verify the value returned matches the `rlim` values you have set.

If any of the values fail to match the updated settings, ensure you have performed the steps as described and restart your computer.

## 4.4.5  Additional hardware requirement for LiveCycle Content Services ES2

If you are installing LiveCycle Content Services ES2 for use with a DB2 database, you must have a minimum of 2 GB of RAM on the database computer.

## 4.4.6 Recommended hardware requirements for client-side computers

**Workbench ES2**

- Disk space for installation:

  1.5 GB for Workbench ES2 only

  1.7 GB on a single drive for a full installation of Workbench ES2, Designer ES2, and the samples assembly

  400 MB for temporary install directories - 200 MB in the user temp directory and 200 MB in the Windows temporary directory

**Note:** If all of these locations reside on a single drive, there must be 1.5 GB of space available during installation. The files copied to the temporary directories are deleted when installation is complete.

- Memory for running Workbench ES2: 2 GB of RAM
- Hardware requirement: Intel® Pentium® 4 or AMD equivalent, 1 GHz processor
- Minimum1024 X 768 pixels or greater monitor resolution with 16-bit color or higher
- TCP/IPv4 or TCP/IPv6 network connection to the LiveCycle ES2 server

**Note:** You must have Administrative privileges to install Workbench ES2 on Windows. If you are installing using a non-administrator account, the installer will prompt you for the credentials for an appropriate account.

**Designer ES2**

- A minimum of Adobe Reader 9.3. Acrobat 9.3 Pro Extended (recommended) is required to benefit from all the new features in Designer ES2, including the 3D features.
- Adobe Flash Player 9.0 or later.
- (Optional) Flex Builder™ 3.0 or later.
- (Optional) Flex SDK 3.4 (required for customizing form guide components that are shipped with Designer ES2).

**Note:** Use the Flex SDK 3.4 included with the Designer ES2 installer only. Do not use any version of Flex SDK obtained from the Adobe web site.

**Note:** For more information, see *Installing Your Development Environment*.

**End-user hardware requirements:**

- LiveCycle Workspace ES2: 1 GB of RAM (includes requirements for Adobe Flash and Adobe Reader)
- Adobe Flash Player 9 or later: 512 MB of RAM (1 GB recommended)
- Adobe Reader 8.x or later: 128 MB of RAM (256 MB recommended)

**Note:** For web browser requirements, see "End-user user interface" on page 43.

## 4.4.7  Supported software

| Required software | Supported version |
|---|---|
| Operating system | • Microsoft Windows<br><br>   • Windows Server 2008 Enterprise Edition or Standard Edition SP1 or later (64-bit)<br><br>   • Windows Server 2008 R2 Standard Edition or Enterprise Edition<br><br>   • Windows Server 2003 Enterprise Edition or Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2003 R2 Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2003 R2 Enterprise Edition SP2 and later running on 32-bit , 64-bit, and VMWare ESX/GSX architectures<br><br>• (PDF Generator 3D ES2) Microsoft Windows<br><br>   • Windows Server 2008 Enterprise Edition or Standard Edition SP1 or later (64-bit)<br><br>   • Windows Server 2008 R2 Standard Edition or Enterprise Edition<br><br>   • Windows Server 2003 Enterprise Edition or Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2003 R2 Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2003 R2 Enterprise Edition SP2 and later running on 32-bit, 64-bit, and VMWare ESX/GSX architectures<br><br>• (Workbench ES2) Microsoft Windows<br><br>   • Windows 7 32-bit and 64-bit (Home Basic, Home Premium, Professional, and Enterprise Editions)<br><br>   • Windows Vista 32-bit and 64-bit (Business, Home Basic, Home Premium, and Ultimate editions)<br><br>   • Windows XP Professional SP2 and above<br><br>   • Windows Server 2003 Enterprise Edition or Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2003 R2 Standard Edition SP2 and later (32-bit and 64-bit)<br><br>   • Windows Server 2008 Enterprise Edition or Standard Edition SP1 or later<br><br>   • Windows Server 2008 R2 Standard or Enterprise Edition<br><br>• Sun Solaris 10 (64-bit edition only)<br><br>• IBM AIX 5L 5.3 and 6.1 (64-bit edition only)<br><br>• SUSE Linux Enterprise Server 10.0 (64-bit edition only)<br><br>• SUSE Linux Enterprise Server 11.0 (64-bit edition only)<br><br>• Red Hat Enterprise Linux AP or ES 5 (64-bit edition only) |

| Required software | Supported version |
|---|---|
| Application server | • JBoss Application Server 4.2.0 and 4.2.1<br><br>• JBoss Enterprise Application Platform 4.3<br><br>• IBM WebSphere 6.1.0.21 (Base and Network Deployment Edition)<br><br>• IBM WebSphere 7.0.0.9 (Base & Network Deployment Edition)<br><br>• Oracle WebLogic 10g R3 (Standard and Enterprise editions)<br><br>• Oracle WebLogic 11g R3 - 10.3.3 |
| Web browser | For a list of web browsers, see "Web browser support" on page 43. |
| JDK | • JBoss 4.2.0 on all platforms: Sun JDK 5.0 update 11 or later updates to 5.0 available from "Previous Releases" at Sun Developer Network.<br><br>• JBoss 4.2.1 and JBoss EAP 4.3 on all platforms: Sun Java SE Development Kit (JDK) 6.0 update 14 or later updates to 6.0 or later available at Sun Developer Network.<br><br>• WebLogic on Windows and Linux: Oracle JRockit® Real Time 3.1.2-1.6.0.14 available from Oracle.<br><br>• WebLogic on Solaris: Sun Java SE Development Kit (JDK) 6.0 update 7 or later available from Sun Developer Network. Requires the Daylight Savings Time (TZ) update, available at Sun Updater Tool, to be run in North America.<br><br>• WebSphere 6.1 on all platforms: WebSphere Java SDK 1.5 SR8.<br><br>• WebSphere 7.0 on all platforms: WebSphere Java SDK 1.6 SR7.<br><br>To use AES 256 encryption with LiveCycle Rights Management ES2, obtain and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy files from the Java SE Downloads.<br><br>**Note:** These requirements are optional and required only if you need to use Advanced Encryption Standard (AES) 256. |
| 32-bit JDK (required for 64-bit application server only) | • Sun JDK 6 update 14 or later updates to 6.0 available at Sun Developer Network. |
| Database | • IBM DB2 9.1 or later versions of 9.x(Enterprise Edition)<br><br>• Microsoft SQL Server 2005 SP3 or 2008 (Standard and Enterprise Edition)<br><br>• MySQL 5.1.30 InnoDB Engine<br><br>• Oracle 10g or 11g R2 (Standard and Enterprise Editions)<br><br>**Note:** LiveCycle ES2 is compliant with the database vendors' compatibility statements. (See the vendors' websites.) |

| Required software | Supported version |
|---|---|
| Database driver | • IBM DB2 9.x driver is required for all supported versions of DB2: db2jcc.jar (version 3.50.152)<br><br>• SQL Server JDBC 1.2: sqljdbc.jar for both Microsoft SQL Server 2005 SP3 and Microsoft SQL Server 2008.<br><br>• MySQL: Connector/J 5.1.6: mysql-connector-java-5.1.6-bin.jar<br><br>• Oracle 10g and 11g R2: ojdbc5.jar (release 11.1.0.6) for JDK 1.5 or ojdbc6.jar (release 11.1.0.6) for JDK 1.6<br><br>**Note:** The LiveCycle installation media includes these database drivers in the *[DVD_root]*/third_party/db/*database* directory.<br><br>**Note:** All LiveCycle Business Activity Monitoring ES2 metadata databases use the drivers listed above. |
| LDAP server | • Sun ONE 5.1, 5.2, 6.x<br><br>• Microsoft Active Directory 2003 and 2008<br><br>• Novell® eDirectory 8.7.3<br><br>• IBM Tivoli Directory Server 6.0<br><br>• IBM Domino Enterprise Server 8.0 and later updates of 8.0 |
| Email servers | • Microsoft Exchange 2000, 2003, 2007<br><br>• Lotus Notes/Domino 6/7<br><br>• SendMail (included with Red Hat 5)<br><br>• Novell GroupWise 6/7<br><br>• |
| LiveCycle Data Services ES2 | • Adobe Flex® Builder™ 2.0.1 Hot Fix 2 or later<br><br>• Adobe Flash Builder 4 or later<br><br>or<br><br>• Flex SDK 2.0.1 Hot Fix 2 or later<br><br>• Flex is required for these tasks:<br>   • Using LiveCycle Data Services ES2<br>   • Customizing form guides in LiveCycle Designer ES2<br>   • Customizing LiveCycle Workspace ES2<br>   • Creating Flex applications for LiveCycle Workspace ES2<br>   • Calling LiveCycle ES2 APIs using Flex |

| Required software | Supported version |
|---|---|
| LiveCycle ES2 connector | **Connector for EMC® Documentum®:**<br><br>• EMC Documentum Content Server 6.0<br><br>• EMC Documentum Content Server 6.5<br><br>In addition, on your LiveCycle ES2 server, install the version of EMC Documentum Foundation Classes (DFC) that corresponds to your version of Content Server. (See *Documentum Foundation Classes Installation Guide* available from EMC Documentum.)<br><br>**Connector for IBM FileNet:**<br><br>• IBM FileNet P8 Content Engine 4.0.x, 4.5 and 5.0<br><br>• IBM FileNet P8 Process Engine 4.0.x, 4.5 and 5.0<br><br>**Note:** The version of Process Engine should correspond to the version of your Content Engine (for example, Process Engine 4.0.x for Content Engine 4.0.x).<br><br>In addition, on your LiveCycle ES2 server, install the version of IBM FileNet P8 Content Java API that corresponds to your version of Content Engine (for example, 4.0.x Content Engine Java API or 4.5 Content Engine Java API). (See "Additional requirements for LiveCycle ES2 Connector for IBM FileNet" on page 53.) For a list of the required JAR files, see *Content Java API Developer's Guide* available from IBM FileNet.<br><br>**Connector for IBM Content Manager:**<br><br>• IBM Content Manager 8.4 (version 8.4 - 8.4.1.1 only)<br><br>In addition, on your LiveCycle ES2 server, install the version of IBM software that corresponds to your version of IBM Content Manager:<br><br>• DB2 Universal Database Client (not required if IBM Content Manager is on same server as the LiveCycle ES2 server)<br><br>• Information Integrator for Content (II4C) available from IBM<br><br>**Note:** IBM Content Manager running on Oracle database is not supported.<br><br>**Connector for Microsoft SharePoint:**<br><br>• Microsoft SharePoint Server 2007<br><br>• Microsoft SharePoint Server 2010<br><br>In addition, the server running SharePoint Server must have Microsoft .NET Framework 3.5 installed. |
| PDF client | • Adobe Acrobat® Professional, Acrobat® Standard, and Acrobat Pro Extended, versions 8.0 to 9.3.<br><br>• Adobe Reader, versions 8.0 to 9.3.<br><br>**Note:** For policy protecting a document, you require Acrobat Professional, Acrobat Standard, or Acrobat Pro Extended, versions 8.0 to 9.3. Adobe Reader doesn't offer the capabilities to policy-protect documents.<br><br>• Apple® QuickTime 7 Player or Pro (for converting embedded video to PDF multimedia) |

**Note:** LiveCycle Business Activity Monitoring ES2 is not supported on 32-bit systems. You must deploy it on a 64-bit system. Even though the LiveCycle ES2 installer can install the Business Activity Monitoring ES2 file set on a 32-bit system, it fails during configuration.

## 4.4.8  Installation user account for Windows

When installing on Windows, you must have administrative privileges. If you run the installer using a non-administrator account, enter the credentials of an account that has administrative privileges.

## 4.4.9  Configuration for 64-bit Windows installations

On 64-bit Windows Server 2008, Windows Vista, or Windows 7, modify the Admin Approval Mode security option as follows:

1. Go to **Start > Control Panel > Administrative Tools > Local Security Policy > Local Policies > Security Options**.

2. Locate **User Account Control: Behavior of the elevation prompt for administrators in Admin Approval Mode** and set it to **Elevate without prompt**.

3. Restart your computer.

**Caution:** The Windows UAC must remain disabled for PDF Generator ES2 or PDF Generator 3D ES2 to work properly. During the install and configuration process, turning on the UAC with the *Elevate without prompt* option enabled is sufficient, but the UAC must be completely disabled in order to run PDF Generator ES2 or PDF Generator 3D ES2.

If you are installing and configuring on an evaluation system, you can enable the UAC on the computer after you have deployed to your production computer or uninstalled PDF Generator ES2 or PDF Generator 3D ES2.

➤ **Disable the Windows UAC on Vista:**

1. To access the System Configuration Utility, go to **Start > Run** and in the **Open:** box enter `MSCONFIG`.

2. Click the **Tools** tab and scroll down and select **Disable UAC.**

3. Click **Launch** to run the command in a new window.

4. When finished, close the command window and close the System Configuration window.

5. Restart your computer.

To enable the UAC again, repeat the steps above and select **Enable UAC** before clicking Launch.

➤ **Disable the Windows UAC on Server 2008 or Windows 7:**

1. Go to **Start** > **Control Panel** > **System and Security**, and under Action Center, select **Change User Account Control Settings**.

2. On the **Choose when to be notified about change to your computer** screen, move the slider to **Never Notify**.

3. Click OK.

To enable the UAC again, repeat the steps above and select the **Use User Account Control (UAC) to help protect your computer** option before restarting the computer.

## 4.4.10  Minimum database user permissions

| Database | Initialization permissions | Runtime permissions |
|---|---|---|
| Oracle | CREATE SESSION<br>CREATE CLUSTER<br>CREATE TABLE<br>CREATE VIEW<br>CREATE SEQUENCE<br>UNLIMITED TABLE SPACE | CREATE SESSION<br>UNLIMITED TABLE SPACE (only needed if you do not configure user quotas)<br>CREATE TABLE |
| MySQL | SELECT<br>INSERT<br>UPDATE<br>DELETE<br>CREATE<br>DROP<br>REFERENCES<br>INDEX<br>ALTER<br>CREATE_TEMP_TABLE<br>LOCK_TABLES | SELECT<br>INSERT<br>UPDATE<br>DELETE |
| SQL Server - DB level | Create Table<br>Create View<br>Connect | Connect |
| SQL Server - Schema level | Alter<br>Insert<br>References<br>Select<br>Update<br>Delete | Insert<br>Select<br>Update<br>Delete |
| DB2 | See "DB2 user account" in *Preparing to Install LiveCycle ES2* for a complete description. | See "DB2 user account" in *Preparing to Install LiveCycle ES2* for a complete description. |

## 4.4.11  Web browser support

### 4.4.11.1  End-user user interface

End-user components include these modules:

- LiveCycle Workspace ES2 (Flash Player required)

  **Note:** Adobe Flash Player 9.0.115.0 or later is required for Workspace ES2 or for using form guides in Workspace ES2.

- LiveCycle Reader Extensions ES2 (Flash Player required)

- LiveCycle Rights Management ES2 (Flash Player required)

- LiveCycle PDF Generator ES2 and LiveCycle PDF Generator 3D ES2 (browser only)

- LiveCycle Content Services ES2 (browser only)

| Operating system | Flash Player | Supported browser |
|---|---|---|
| Microsoft Windows 7 | Flash Player 10 | Microsoft Internet Explorer 8<br>Firefox 3.0 or later[1] |
| Microsoft Windows Vista™ | Flash Player 9 or 10 | Microsoft Internet Explorer 7 or later[1]<br>Firefox 3.0 or later[1] |
| Windows 2000 | Flash Player 9 or 10 | Internet Explorer 6 or later[1]<br>Firefox 3.0 or later[1] |
| Windows XP | Flash Player 9 or 10 | Internet Explorer 6 or later[1]<br>Firefox 3.0 or later[1] |
| Windows Server 2008 | Flash Player 10 | Internet Explorer 8<br>Firefox 3.0 or later[1] |
| Windows Server 2003 | Flash Player 9 or 10 | Internet Explorer 6 or later[1]<br>Firefox 3.0 or later[1] |
| Mac OS X v 10.4.x or 10.5.x (PowerPC) | Flash Player 9 or 10 | Firefox 3.0 or later (not for Workspace ES2)[1][2]<br>Safari 3.x or 4.x (Workspace ES2 and Content Services ES2 require version 3.0.3 or later) |
| Mac OS X v 10.4.x, 10.5.x., or 10.6.x (Intel) | Flash Player 9 or 10 | Firefox 3.0 or later (not for Workspace ES2)[1][2]<br>Safari 3.x or 4.x (Workspace ES2 and Content Services ES2 require version 3.0.3 or later) |

[1]"or later" includes major revisions. For example, Internet Explorer 6 or later also covers Internet Explorer 7 and 8.

[2]Workspace ES2 supports Internet Explorer and Firefox on Windows but only Safari 3.0.3 or later on the Mac.

- LiveCycle Forms ES2

| Operating system | Flash Player | Supported browser |
|---|---|---|
| Microsoft Windows 7 | N/A | Microsoft Internet Explorer 8<br>Firefox 3.0 or later[1]<br>Netscape 8.x or later |
| Microsoft Windows Vista™ | N/A | Microsoft Internet Explorer 6 or later[1]<br>Firefox 3.0 or later[1]<br>Netscape 8.x or later |
| Windows XP | N/A | Microsoft Internet Explorer 6 or later[1]<br>Firefox 3.0 or later[1]<br>Netscape 8.x or later |
| Windows Server 2008 | N/A | Firefox 3.0 or later[1] |
| Windows Server 2003 | N/A | Firefox 3.0 or later[1] |
| Linux (Intel) | N/A | Firefox 3.0 or later[1]<br>Netscape 8.x or later |
| Mac OS X v 10.4.x or 10.5.x (PowerPC) | N/A | Safari 3.x or 4.x |
| Mac OS X v 10.4.x, 10.5.x., or 10.6.x (Intel) | N/A | Safari 3.x or 4.x |

[1]"or later" includes major revisions. For example, Internet Explorer 6 or later also covers Internet Explorer 7 and 8.

- LiveCycle Business Activity Monitoring ES2

| Operating system | Flash Player | Supported browser |
|---|---|---|
| Microsoft Windows Vista™ | Flash Player 9 or 10 | Microsoft Internet Explorer 7or later[1] |
| Windows XP | Flash Player 9 or 10 | Microsoft Internet Explorer 6 or later[1] |
| Windows Server 2000 | Flash Player 9 or 10 | Microsoft Internet Explorer 6 or later[1] |

[1]"or later" includes major revisions. For example, Internet Explorer 6 or later also covers Internet Explorer 7 and 8.

### 4.4.11.2 Administrator user interface

| Operating system | Flash Player | Supported browser |
| --- | --- | --- |
| Microsoft Windows 7 | N/A | Internet Explorer 8 |
| | | Firefox 3.0 or later[1] |
| Microsoft Windows Vista | N/A | Internet Explorer 7 or later[1] |
| | | Firefox 3.0 or later[1] |
| Windows 2000 | N/A | Internet Explorer 6 or later[1] |
| | | Firefox 3.0 or later[1] |
| Windows XP | N/A | Internet Explorer 6 or later[1] |
| | | Firefox 3.0 or later[1] |
| Windows Server 2008 | N/A | Internet Explorer 8 |
| | | Firefox 3.0 or later[1] |
| Windows Server 2003 | N/A | Internet Explorer 6 or later[1] |
| | | Firefox 3.0 or later[1] |
| Linux (Intel) | N/A | Firefox 3.0 or later[1] |

[1]"or later" includes major revisions. For example, Microsoft Internet Explorer 6 or later also covers Microsoft Internet Explorer 7 and 8.

### 4.4.11.3 Using Content Services ES2 with Firefox

Due to certain restrictions to how Firefox handles local links beginning with `file:///`, in order to use Content Services ES2 with Firefox you must update your Firefox installation by downloading and installing the plug-in from the following location: http://forge.alfresco.com/projects/firefox-ext/

## 4.4.12 Additional requirements for PDF Generator ES2 and PDF Generator 3D ES2

**Note:** PDF Generator 3D ES2 is supported on Windows environments only.

**Note:** Ensure that X Window libraries are installed on your operating system. This is required for PDF Generator ES2 and Forms ES2. See documentation for your operating system for more information.

**Note:** You cannot use the Shared Printer Protocol for the `SendToPrinter` API on Windows 2008 machines that have PDF Generator ES2 deployed on them. Use alternate protocols like CIFS or Direct IP.

### 4.4.12.1 User account for Windows

You must use a user account with administrator privileges for the following tasks:

- Installing Microsoft Office

- Installing PDF Generator ES2 or PDF Generator 3D ES2

- Installing Acrobat 9.3 Professional Extended for PDF Generator ES2 or PDF Generator 3D ES2

- Running the application server process

## 4.4.12.2  Using 64-bit application servers with PDF Generator

If you are using a 64-bit application server on a system with PDF Generator ES2 or PDF Generator 3D ES2, ensure that a 32-bit Java 6 JDK is installed in addition to the 64-bit one the application server uses. Set the environment variable `JAVA_HOME_32`. This variable is required to point to a 32-bit JDK on systems where a 64-bit application server is in use. The specific path varies based on the installation directory you specified and the operating system you are installing on.

**Note:** You need to install the 32-bit Sun JDK and configure `JAVA_HOME_32` to point to the directory where it resides.  Review [Sun Java 6 Release Notes > Supported System Configurations](#) and download the 32-bit version for your operating system, except for AIX.

**Caution:** Ensure that  `JAVA_HOME_32` is set only as an environment variable and is not included in the PATH. If `JAVA_HOME_32` is included in the PATH, Java core dumps may appear during EAR deployment or when you restart the server.

➤ **To set the Windows JAVA_HOME_32 variable:**

1.  Select **Start** > **Control Panel** > **System**.

2.  Click the **Advanced** tab**.**

3.  Click **Environment Variables** and, under System Variables, click **New.**

4.  Enter the environment variable `JAVA_HOME_32`. This directory is the directory that contains the JDK. For example, type the following code:

    ```
    D:\Program Files (x86)\Java\jdk1.6.0_14
    ```

➤ **To set the JAVA_HOME_32 variable on Linux or Solaris:**

Set the JAVA_HOME_32 variable for the supported JDK for Borne and Bash shells as shown in this example:

```
JAVA_HOME_32=/opt/jdk1.6.0_14
export JAVA_HOME_32
```

## 4.4.12.3  Native file conversion software installation

Before you install PDF Generator ES2 or PDF Generator 3D ES2, install the software that supports the file formats for which PDF conversion support is required and manually activate the licenses for the software using the user account that is used for running the application server process.

You must activate one license on  LiveCycle ES2 server for each native application that PDF Generator ES2 or PDF Generator 3D ES2 supports. Refer to the individual licensing agreement for each native application that your LiveCycle ES2 deployment will support, and ensure that your LiveCycle ES2 deployment meets the licensing requirements specified. Typically, each LiveCycle ES2 user who will use native application support must also have an activated license on their own computer for the native application.

PDF Generator ES2 or PDF Generator 3D ES2 can be extended to convert these additional file types to PDF files by using the following applications:

- Microsoft Office 2003, 2007 (DOC, XLS, PPT, RTF, TXT, Microsoft Office open XML Formats)
- Microsoft Office Visio 2003, 2007 (VSD)
- Microsoft Publisher 2003, 2007 (PUB)
- Microsoft Project 2003, 2007 (MPP)
- AutoCAD 2005, 2006, 2007, 2008 (DWG, DXF, DWF)

**Note:** Native file conversions using AutoCAD for DWG, DXF, and DWF files are supported only on 32-bit environments. Conversions for these file types using Acrobat are supported on both 32-bit and 64-bit platforms.

- Corel WordPerfect 12, X4 (WPD)
- Adobe Photoshop® CS2
- Adobe FrameMaker® 7.2, 8.0 (FM)
- Adobe PageMaker® 7.0 (PMD, PM6, P65, PM)
- OpenOffice 2.4.2, 3.1 (ODT, ODP, ODS, ODG, ODF, SXW, SXI, SXC, SXD, SXM).

**Note:** OpenOffice 3.1 or later must be installed on the server to convert the documents created in version 3.1. OpenOffice 2.4.2 cannot convert documents created in later versions of OpenOffice.

You do not need to install a native software application to convert the following native file formats:

- Print files (PS, PRN, EPS)
- Web files (HTML)
- Image files (JPEG, GIF, BMP, TIFF, PNG)

### 4.4.12.4  Acrobat

PDF Generator ES2 or PDF Generator 3D ES2 requires that Acrobat Pro Extended is installed. You must install Acrobat before you run the LiveCycle ES2 installer.

However, if LiveCycle ES2 is installed (or upgraded from a previous version) and Acrobat Pro Extended is not installed, you need to install Acrobat Pro Extended and then run the Acrobat_for_PDFG_Configuration.bat script, located in *[LiveCycle ES2 media]*\JBoss_EFGJ_DVD\additional\scripts or in the folder *[LiveCycleES2 root]*\pdfg_config. Otherwise, PDF conversions may fail.

The LiveCycle ES2 installer sets the `Acrobat_PATH` environment variable automatically. If you need to set it manually, see "Setting environment variables" in the *Installing and Deploying LiveCycle ES2* guide for your application server. You will need to restart the application server.

**Note:** The environment variable `Acrobat_PATH` is case-sensitive.

To use AES 256 encryption in LiveCycle Encryption service to encrypt a PDF document, you must obtain and install the Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy files. For example, for Sun JDK, download JCE files from Java SE Downloads.

After downloading the policy file, replace the existing local_policy.jar and US_export_policy.jar files under [JAVA_HOME]/jre/lib/security folder with the downloaded JAR files.

**Note:** On a 64-bit Windows server using LiveCyle Turnkey installation, copy the downloaded JAR files under *[LiveCycleES2 root]*/Java/jdk1.6.0_14/jre/lib/security.

**Note:** Depending on the JDK that you use, download the required JAR files from either Sun or IBM website.

### 4.4.12.5  QuickTime 7

PDF Generator ES2 requires that QuickTime 7 (Player or Pro) is installed if you want to convert video embedded in files, such as PowerPoint presentations to PDF multimedia files. This application is available from the Apple Downloads site.

### 4.4.12.6  Setting Windows environment variables

You must set the environment variables in Windows if you plan to create PDF documents from applications such as FrameMaker, Photoshop, PageMaker, and WordPerfect.

The names of these environment variables are listed here:

- `FrameMaker_PATH`
- `Notepad_PATH` (This should be left blank)
- `OpenOffice_PATH`
- `PageMaker_PATH`
- `Photoshop_PATH`
- `WordPerfect_PATH`
- `Acrobat_PATH`

These environment variables are optional and need to be set only if you plan to use the corresponding application to convert PDF files through PDF Generator ES2 or PDF Generator 3D ES2. The value of the environment variable should contain the absolute path of the executable that is used to start the corresponding application.

For example, the variable `FrameMaker_PATH` may contain the value `C:\Program Files\Adobe\ FrameMaker7.2\FrameMaker.exe`. However, `OpenOffice_PATH` is different from others. This variable must be set to the OpenOffice installation folder (instead of the path to the executable). A typical value of `OpenOffice_PATH` on Windows would be `C:\Program Files\OpenOffice.org 3.0\`.

Paths for Microsoft Office applications such as Word, PowerPoint, Excel, Visio, and Project or for AutoCAD are not required. The Generate PDF service starts these applications automatically if they are installed on the server.

**Note:** The `Acrobat_PATH` environment variable is case-sensitive.

➤ **To set the Windows environment variables:**

1. Select **Start** > **Control Panel** > **System**.

2. Click the **Advanced** tab**.**

3. Click **Environment Variables** and, under System Variables, click **New.**

4. Enter the environment variable name you need to set (for example**,** `FrameMaker_PATH`). This directory is the directory that contains the executable file. For example, type the following code:

    ```
    C:\Program Files\Adobe\FrameMaker7.2\FrameMaker.exe
    ```

### 4.4.12.7  Network Printer Client installation

PDF Generator ES2 includes the Network Printer Client installer for installation of the PDF Generator ES2 Internet printer. After the installation is completed, a PDF Generator ES2 printer is added to the list of existing printers on the clients computer. This printer can then be used to send documents for conversion to PDF. For more information about installing the Network Printer Client, see *Installing and Deploying LiveCycle ES2* document for your application server.

**Note:** The PDF Generator ES2 Network Printer Client is only supported on the following 32-bit Windows platforms: Windows XP, Windows 2000, Windows Server 2003, Windows Vista.

### 4.4.12.8  Service Control Manager command line tool

Before you complete an automatic installation of PDF Generator ES2 on Windows, ensure that the Service Control Manager command line tool, sc.exe, is installed in the Windows environment. Some Windows servers do not have this software preinstalled. By default, the sc.exe file is installed in the C:\Windows\system32 directory. Most OS installations have this tool installed. If you do not have the tool installed, it is available in the Windows Resource Kit for your specific version of Windows. To confirm that the tool is installed on your server, type `sc.exe` from a command prompt. The tools usage is returned.

### 4.4.12.9  Headless mode configuration

If you are running PDF Generator ES2 in a headless mode environment (that is, on a server without a monitor, keyboard, or mouse), the x11 libraries must be installed. Some flavors of Linux do not install these libraries by default; therefore, you must obtain the libraries and install them manually. For more information, see the Help system for your operating system.

### 4.4.12.10  Enabling multi-threaded file conversions

By default, PDF Generator ES2 can convert only one OpenOffice, Microsoft Word, or PowerPoint document at a time. If you enable multi-threaded conversions, PDF Generator ES2 can convert more than one of the documents concurrently by launching multiple instances of OpenOffice or PDFMaker (which is used to perform the Word and PowerPoint conversions).

**Note:** Multi-threaded file conversions are not supported with Microsoft Word 2003 and PowerPoint 2003. In addition, Microsoft Excel (both 2003 and 2007 versions) are not supported. To enable multi-threaded file conversions, upgrade to Microsoft Word 2007 and PowerPoint 2007.

Each instance of OpenOffice or PDFMaker is launched using a separate user account. Each user account that you add must be a valid user with administrative privileges on the LiveCycle ES2 server computer.

On Windows platforms, you must add the right to replace the process-level token. (See "Granting the Replace a process level token privilege (Windows only)" on page 50.)

On 64-bit Windows, the Windows UAC must be disabled. (See "Configuration for 64-bit Windows installations" on page 41).

On all platforms, you must also configure the user permissions. (See "Multi-user support for PDF Generator ES2" on page 50.) When adding users for OpenOffice, Microsoft Word, or Microsoft PowerPoint on Windows 2003 or 2008, or for OpenOffice on Linux or Solaris, dismiss the initial activation dialogs for all users.

After your LiveCycle ES2 server is configured, you must add LiveCycle ES2 user accounts in LiveCycle Administration Console and on AIX, Linux, or Solaris platforms, turn off password prompting. See the "Configuring user accounts for multi-threaded file conversions" in the *Upgrading to LiveCycle ES2* guide for your application server.

**Additional configuration required for OpenOffice on Linux or Solaris**

1. Add entries for additional users (other than the administrator who runs the LiveCycle ES2 server) in the /etc/sudoers file. For example, if you are running LiveCycle ES2 as a user named lcadm and a server named myhost, and you want to impersonate user1 and user2, add the following entries to /etc/sudoers:

   ```
   lcadm myhost=(user1) NOPASSWD: ALL
   lcadm myhost=(user2) NOPASSWD: ALL
   ```

   This configuration enables lcadm to run any command on host 'myhost' as 'user1' or 'user2' without prompting for password.

2. Allow all the users that you added via Add a user account to make connections to the LiveCycle ES2 server. For example, to allow a local user named user1 the permission of making the connection to the LiveCycle ES2 server, use the following command:

   ```
   xhost +local:user1@
   ```

   For more details, refer to xhost command documentation.

3. Restart the server.

## 4.4.12.11  Multi-user support for PDF Generator ES2

To enable multi-user support for Native files and OpenOffice files on a Windows environment, a minimum of three users with the following permissions must be added. On a AIX, Linux, or Solaris platform, create at least one user.

| Platform | User permissions |
| --- | --- |
| Windows 2008 Server | Users with administrative privileges and UAC disabled |
| Windows 2003 Server | Users with administrative privileges |
| AIX, Linux, and Solaris | Users with `sudo` privileges |

When you add users for PDF Generator ES2 native conversions, you must grant the user running the application server with the *Replace a process level token* privilege. See "Granting the Replace a process level token privilege (Windows only)" on page 50.

## 4.4.12.12  Granting the *Replace a process level token* privilege (Windows only)

User accounts that are used to start the application server from a command prompt and not as a Windows service requires the *Replace a process level token* privilege. This setting is required for PDF Generator ES2.

➤ **To grant the *Replace a process level token* privilege:**

1. Click Start > Run, and then type gpedit.msc.

2.  On the Group Policy dialog box, select **Computer Configuration** > **Windows Settings** > **Security Settings** > **Local Policies** > **User Rights Assignment**, and double click **Replace a process level token**.

3.  Click **Add User or Group**, add the Windows user account that is used to open the command prompt from which the application server is started.

4.  Restart Windows, and then start the application server.

## 4.4.13  Additional requirements for Connector for IBM Content Manager

**Note:** For upgrade, these configurations are only required if you do not have Connector for IBM Content Manager installed on your LiveCycle ES (8.x) but will license it on LiveCycle ES2 or if you are performing an out-of-place upgrade on a new operating system.

LiveCycle ES2 Connector for IBM Content Manager requires the following software installed (both available from the IBM website):

-   DB2 Universal Database Client

-   IBM Information Integrator for Content (II4C)

See "Post-Deployment Activities" chapter in the *Installing and Deploying LiveCycle ES2* document for your application server.

➤ **To configure the connection for a single IBM Content Manager datastore:**

1.  Start the DB2 Configuration Assistant.

2.  Click **Selected** > **Add Database Using Wizard**.

3.  Select **Manually Configure a Connection to a Database** and click **Next**.

4.  Select **TCP/IP** and click **Next**.

5.  Specify the following TCP/IP communication options and then click **Next**:

    -   In the **Host Name** box, type the host name of the server hosting DB2 Content Manager.

    -   Leave the Service Name box empty.

    -   In the **Port Number** box, type the port number. The default DB2 Content Manager port number is 50000.

6.  In the **Database Name** box, type the IBM Content Manager datastore name and, in the **Database Alias** box, type the alias name for the datastore and then click **Next**.

7.  Click **Next** to accept the default data source settings.

8.  In the **Operating System** list, select the operating system you are using and then click **Next**.

9.  Specify the following system options and then click **Next**:

    -   In the **System Name** box, type the server name hosting DB2. If you click Discover, DB2 Content Manager searches for the system name you specified and, if the system is not found, all of the DB2 instances are listed.

    -   In the **Host Name** box, type the name of the host, or click View Details to show the domain and IP address of the system you named in the previous step.

- In the **Operating System** list, select the operating system (Windows, Linux, or AIX) on which you deployed DB2 Content Manager.

10. (Optional) To specify Security options, select **Use Authentication Value in Server's DBM Configuration** and click **Finish**.

11. In the Test Connection dialog box, test the connection as required.

➤ **To configure connections for multiple IBM Content Manager datastores:**

1. Configure the initial connection by following the steps in [“To configure the connection for a single IBM Content Manager datastore:” on page 51](#).

2. Add additional database connections by modifying the cmbicmsrvs.ini file (the file that stores the datastore information) as follows:

   - From a command prompt window, change the directory to *[II4C home]*/bin (for example, C:\Program Files\db2cmv8\ on Windows **or** /opt/IBM/db2cmv8 on AIX, Linux, or Solaris).

   - Run the cmbenv81.bat (Windows) or cmbenv81.sh (AIX, Linux, or Solaris) file to set the environment and the classpath for the Java Utilities of II4C.

   - Change the directory to *[II4C working directory]*/cmgmt/connectors where *[II4C working directory]* is one of the following paths:

     (Windows) C:/Program Files/db2cmv8

     (Linux, AIX) /home/ibmcmadm

     (Solaris) /export/home/ibmcmadm

   - Run the command `java com.ibm.mm.sdk.util.cmbsrvsicm -a add -s <library server database name> -sm <database schema name>`, where `<library server database name>` is the same as `Database Alias` configured in step 6 above.

   **Note:** The following procedure allows users without DB2 rights to share the connection credentials through the cmbicmenv.ini file.

➤ **To configure a multiuser connection to the IBM Content Manager datastore:**

1. From a command prompt window, change the directory to *[II4C home]*/bin (for example, C:\Program Files\db2cmv8\ on Windows **or** /opt/IBM/db2cmv8 on AIX, Linux, or Solaris).

2. Run the cmbenv81.bat (Windows) or cmbenv81.sh (AIX, Linux, or Solaris) file to set the environment and the classpath for the Java Utilities of II4C.

3. Change the directory to *[II4C working directory]*/cmgmt/connectors, where *[II4C working directory]* is one of the following paths:

     (Windows) C:/Program Files/db2cmv8

     (Linux, AIX) /home/ibmcmadm

     (Solaris) /export/home/ibmcmadm

4. Run the command `java com.ibm.mm.sdk.util.cmbenvicm -a add -s <library server database name> -u <database user ID> -p <database password>`, where `<library server database name>` is the same as `Database alias` configured in step 6 above.

## 4.4.14  Additional requirements for LiveCycle ES2 Connector for IBM FileNet

These requirements are optional and required only if you are installing Connector for IBM FileNet.

**Note:** For upgrade, these configurations are only required if you do not have Connector for IBM FileNet installed on your LiveCycle ES (8.x) but will license it on LiveCycle ES2 or if you are performing an out-of-place upgrade on a new operating system.

### IBM FileNet 4.0

If LiveCycle ES2 is connecting to IBM FileNet 4.0 Content Engine, you must install the Content Engine Java Client. Use the IBM FileNet 4.0 content server installer located by default in C:\Program Files\FileNet\Content Engine. Select only the Java client component on the component selection screen.

For IBM FileNet 4.0 Process Engine settings, copy the pe.jar file from the Process Engine directory to the computer that will host LiveCycle ES2. Create the directory `C:\FileNetPE\files` and copy the pe.jar file there. The Process Engine client install directory is now C:\FileNetPE.

### IBM FileNet 4.5

If LiveCycle ES2 is connecting to IBM FileNet 4.5 Content Engine, you must install the Content Engine client located by default in C:\Program Files\FileNet. During installation, select at least one of the components from Application Engine or Process Engine on the component selection screen.

For IBM FileNet 4.5 Process Engine, you must install the IBM FileNet 4.5 Process Engine Client located by default in C:\Program Files\FileNet\BPMClient. During installation, select the **Other** option on the component selection screen.

### IBM FileNet 5.0

If LiveCycle ES2 is connecting to IBM FileNet 5.0 Content Engine, you must install the Content Engine client located by default in C:\Program Files\FileNet. During installation, select at least one of the components from Application Engine or Process Engine on the component selection screen.

For IBM FileNet 5.0 Process Engine, you must install the IBM FileNet 5.0 Process Engine Client located by default in C:\Program Files\FileNet\BPMClient. During installation, select the **Other** option on the component selection screen.

## 4.4.15  Additional upgrade requirements for Content Services ES2

If your LiveCycle version 8.0 environment includes a DB2 database and you are installing Content Services ES2 with your upgrade, you must create and run the following script before you perform your installation.

➤ **To prepare for installing Content Services ES2 with your upgrade:**

1. In a text editor, copy the following script:

**Note:** The following text contains formatting characters for line breaks. If you copy this text to a location outside this document, remove the formatting characters when you paste it to the new location.

**For DB2 9.1**

```
connect to dbname;
```

```
CREATE BUFFERPOOL BP32K SIZE 4000 PAGESIZE 32768 NOT EXTENDED STORAGE;
CREATE TEMPORARY TABLESPACE dbname_TEMP_32K IN DATABASE PARTITION GROUP
IBMTEMPGROUP PAGESIZE 32768 MANAGED BY SYSTEM USING
('DB2_root\dbname32k_TEMP') EXTENTSIZE 32 PREFETCHSIZE 16 BUFFERPOOL
BP32K;
CREATE REGULAR TABLESPACE dbname_DATA_32K IN DATABASE PARTITION GROUP
IBMDEFAULTGROUP PAGESIZE 32768 MANAGED BY DATABASE USING
(FILE'DB2_root\dbname32k_DATA'9000) EXTENTSIZE 16
PREFETCHSIZE 16 BUFFERPOOL BP32K;
commit work;
deactivate database dbname;
activate database dbname;
```

**For DB2 9.5**

```
connect to dbname;
CREATE BUFFERPOOL BP32K SIZE 500 PAGESIZE 32768;
CREATE TEMPORARY TABLESPACE dbname_TEMP_32K IN DATABASE PARTITION GROUP
IBMTEMPGROUP PAGESIZE 32768 MANAGED BY SYSTEM USING
('DB2_root\dbname32k_TEMP') EXTENTSIZE 32 PREFETCHSIZE 16 BUFFERPOOL
BP32K;
CREATE REGULAR TABLESPACE dbname_DATA_32K IN DATABASE PARTITION GROUP
IBMDEFAULTGROUP PAGESIZE 32768 MANAGED BY DATABASE USING
(FILE'DB2_root\dbname32k_DATA'9000) EXTENTSIZE 16
PREFETCHSIZE 16 BUFFERPOOL BP32K;
commit work;
deactivate database dbname;
activate database dbname;
```

2.  Make the following changes to the script:

    ● Replace the instances of *dbname* with the name of your LiveCycle ES2 database.

    ● Replace *DB2_root* with the path to the root directory where DB2 is installed.

    ● Ensure that no commands include line breaks and each command is terminated by a semicolon (;).

    ● Change 9000 in the following line based on your database size:

    ```
    FILE'DB2_root\dbname32k_DATA'9000
    ```

    This number specifies the minimum number of pages that is required to initialize the database. You can also change this number by using the DB2 administration tools after you initialize the database.

3.  Save the text file in a location that DB2 Command Line Processor can access.

4.  Open a DB2 command prompt and type the following command to run the script:

    ```
    db2 -tf <path_to_script_file>/<script_file_name>
    ```

## 4.5  LDAP configuration

This configuration is optional and required only if you are using an LDAP directory to authenticate users. When you upgrade LiveCycle Policy Server 7.x or Rights Management ES LDAP configuration settings are automatically migrated.

If you do not have an existing LDAP server and database, install and configure your LDAP server and database according to the vendor's documentation. For a list of supported LDAP servers, see "Supported software" on page 37. Make note of the LDAP administrator name and password to use during the LiveCycle ES2 configuration process. Configure LiveCycle ES2 to connect with the LDAP database after you install and deploy your LiveCycle ES2 services. This configuration is done by using the User Manager service. See the *Installing and Deploying LiveCycle ES2* document for your application server.

## 4.6  Global document storage directory

The tasks in this section are required only if you are changing the location of your GDS directory on your upgraded LiveCycle ES2 system.

The global document storage (GDS) directory is used to store long-lived files that are used within a process as well as critical LiveCycle ES2 product components. The lifetime of long-lived files is intended to span multiple restarts of a LiveCycle ES2 system, and can span days and even years. These files may include PDF files, policies, or form templates. Long-lived files are a critical part of the overall state of many LiveCycle ES2 deployments. If some or all long-lived documents are lost or corrupted, the LiveCycle ES2 server may become unstable. Input documents for asynchronous job invocation are also stored in the GDS directory and must be available in order to process requests.

You can also use the document storage in LiveCycle ES2 database. See *LiveCycle ES2 Administration Help* for details.

### 4.6.1  Planning and creating the global document storage directory

You should plan the location, size, and security aspects of your GDS directory in advance. See the following sections:

- "Location of the global document storage directory" on page 55
- "Sizing factors for the global document storage directory" on page 56
- "Securing the global document storage directory" on page 56).
- "Backing up the global document storage directory" on page 56).

You must create the GDS directory before you initialize the LiveCycle ES2 database.

### 4.6.2  Location of the global document storage directory

You can reconfigure the location of your GDS directory with LiveCycle Configuration Manager after you upgrade to LiveCycle ES2. The GDS directory you specify should be highly available and should have low access time to enhance performance. If the GDS directory is on a shared network drive, it is recommended that you specify the location as `\\computer_name\GDS`.

If you leave the location setting empty during installation, the location defaults to a directory under the application server installation:

- (JBoss) *[appserver root]*/server/lc_<dbname>/svcnative/DocumentStorage

- (WebLogic) *[appserverdomain]*/adobe/<server>/DocumentStorage

- (WebSphere) *[appserver root]*/installedApps/adobe/<server>/DocumentStorage or *[appserver root]*/profiles/<profileName>/installedApps/adobe/<server>/DocumentStorage

If you must change the GDS directory location after completing the installation(see *LiveCycle ES2 Administration Help*), you should plan an appropriate location for the GDS directory.

**Caution:** Module deployment will fail on Windows if the GDS directory is at the drive root (for example, D:\). For GDS, you must make sure that the directory is not located at the root of the drive but is located in a subdirectory. For example, the directory should be D:\GDS and not simply D:\.

## 4.6.3  Sizing factors for the global document storage directory

The size of the shared directory depends on expected LiveCycle ES2 usage factors for the deployment. You should allocate a minimum of 10 GB of disk space for the GDS directory, but the following factors also affect the sizing:

- The typical volume of documents that LiveCycle ES2 processes. Processing high volumes of documents requires a larger GDS directory.

- The typical size of documents that LiveCycle ES2 processes. Processing large documents requires a larger shared GDS directory.

- The complexity of documents that LiveCycle ES2 processes. Processing complex documents (such as documents that are processed by multiple LiveCycle ES2 services) requires a larger GDS directory.

## 4.6.4  Securing the global document storage directory

Access to the GDS directory must be secure. The long-lived documents in this directory may contain sensitive user information, such as information that requires special credentials when accessed by using the LiveCycle ES2 SDK or user interfaces.

Use a security method that is appropriate to your operating system. It is recommended that only the operating system account that is used to run the application server has read and write access to this directory.

**Note:** Incorrectly deleting files or directories from the GDS directory can render the LiveCycle ES2 installation inoperative.

## 4.6.5  Backing up the global document storage directory

The global document storage directory should be backed up to allow administrators to restore LiveCycle ES2 in case of failure.

If the global document storage directory becomes unavailable or is lost due to failure, LiveCycle ES2 will not run until the GDS directory and database are restored by a consistent back up or LiveCycle ES2 is reinitialized with a new installation.

If you use the LiveCycle ES2 database for document storage, backup of GDS happens along with the database backup. See *LiveCycle ES2 Administration Help* for details.

# 4.7  LiveCycle Business Activity Monitoring ES2 requirements

**Note:** Business Activity Monitoring ES2 (BAM) is not supported on 32-bit systems. Even though you can install BAM fileset with LiveCycle ES2 on a 32-bit system, you must deploy BAM on a 64-bit system.

## 4.7.1  Basic requirements

### 4.7.1.1  Dedicated JVM

Business Activity Monitoring ES2 requires a dedicated JVM. If you are deploying LiveCycle ES2 and Business Activity Monitoring ES2 on the same computer, be aware that Business Activity Monitoring ES2 must run on a dedicated JVM. This requires that Business Activity Monitoring ES2 is deployed separately from LiveCycle ES2 as follows:

- If deployed on JBoss, the two applications must be deployed on two completely separate JBoss implementations.
- If deployed on WebLogic or WebSphere, the two applications must be deployed on completely separate server definitions.

### 4.7.1.2  Client memory

The client computer that accesses Business Activity Monitoring ES2 should have a minimum of 512 MB RAM (1 GB is recommended).

### 4.7.1.3  Web browser

Business Activity Monitoring ES2 is tested for Microsoft Internet Explorer 6.0 (with patch 828750) or later browser for accessing BAM Workbench and BAM Dashboard. Firefox is not supported.

**Note:** You must also install Adobe Flash, version 9.0.115.0 or later.

**Note:** If your implementation of Business Activity Monitoring ES2 is running in an Asian language, you must configure the browser for the appropriate language support. See the documentation for Internet Explorer or Windows.

### 4.7.1.4  Mail Server

Business Activity Monitoring ES2 requires a running Simple Mail Transfer Protocol (SMTP) email server for delivering email notifications. The server is external to Business Activity Monitoring ES2 and is managed by your email system administrator. Contact that administrator to set up an account specifically for Business Activity Monitoring ES2. You need an account and password for sending mail, an address to use in the From address field, and the name of the email server host.

## 4.7.2  Creating the Business Activity Monitoring ES2 databases

There are two databases required to use the Business Activity Monitoring ES2 functionality: a metadata database and a geography database.

Create a Business Activity Monitoring ES2 metadata database to store the definitions of the process metrics that BAM Server monitors. It also stores the details of any alerts and object run-time data that are persisted to disk.

Because Business Activity Monitoring ES2 metadata can grow large, allocate at least 50 MB for the BAM Server metadata database. For production deployments, allocate at least 200 MB.

BAM Server can require specific settings for some aspects of the BAM Server metadata database configuration. The settings depend on the type of application server that is hosting BAM Server and the type of database server that is used to store the BAM Server metadata.

Also, create a Business Activity Monitoring ES2 geography database to support Geography Maps, which is required for using Geography charts in the dashboard. The size of the geography database depends on the number of geography code entries being accessed. 100 MB - 150 MB is the recommendation.

You need to create a user account that BAM Server can use to connect to the BAM Server metadata and geography databases. For database permissions, see "Minimum database user permissions" on page 42. For all other database settings, use the configurations described for a LiveCycle ES2 database. See "Creating the LiveCycle ES2 Database" for your database type in the *Preparing to Install LiveCycle ES2* guide.

## 4.7.3  JBoss requirements for BAM

**Metadata and geography databases:**

| Database | JDBC driver |
|---|---|
| Oracle | ● Oracle thin driver (ojdbc6.jar) release 11.1.0.6<br><br>**Note:** Use the Oracle 10g JDBC driver for both configurations. |
| MS SQL Server | ● sqljdbc.jar (version 1.2)<br><br>**Note:** Use SQL Server JDBC Driver 1.2 for both Microsoft SQL Server 2005 SP3 and Microsoft SQL Server 2008.<br><br>**Note:** Ensure that the version 2000 drivers are not in the classpath. |
| MySQL | ● mysql-connector-java-5.1.6-bin.jar |

**Note:** A Microsoft issue exists with the sqljdbc.jar driver, which is addressed in the Microsoft Knowledge Base Article 917054.

## 4.7.4  WebLogic requirements for BAM

**Metadata and geography databases:**

| Database | JDBC driver |
| --- | --- |
| IBM DB2 | ● db2jcc.jar (version 3.50.152) |
| MS SQL Server | ● sqljdbc.jar (version 1.2)<br><br>**Note:** Use SQL Server JDBC Driver 1.2 for both Microsoft SQL Server 2005 SP3 and Microsoft SQL Server 2008.<br><br>**Note:** Ensure that the version 2000 drivers are not in the classpath. |
| MySQL | ● mysql-connector-java-5.1.6-bin.jar |
| Oracle | ● Oracle thin driver (ojdbc6.jar) release 11.1.0.6<br><br>**Note:** Use the Oracle 10g JDBC driver for both configurations. |

## 4.7.5  WebSphere requirements for BAM

**Metadata and geography databases:**

| Database | JDBC driver |
| --- | --- |
| IBM DB2 | ● db2jcc.jar (version 3.50.152) |
| MS SQL Server | ● sqljdbc.jar (version 1.2)<br><br>**Note:** Use SQL Server JDBC Driver 1.2 for both Microsoft SQL Server 2005 SP3 and Microsoft SQL Server 2008. |
| Oracle | ● Oracle thin driver (ojdbc6.jar for JDK 1.6 or ojdbc5.jar for JDK 1.5) release 11.1.0.6<br><br>**Note:** Use the Oracle 10g JDBC driver for both configurations. |

# 4.8  Installation considerations

## 4.8.1  Disabling Virus scans (Windows only)

To improve the speed of the installation, disable any on-access virus scanning software for the duration of the installation.

## 4.8.2  Installing from network drives

It is recommended that you install LiveCycle ES2 only from the installation media or a local disk drive. Attempting to install the software over a network results in considerable delays in starting and installing. It is also likely that installing from a network drive will add to the length of the directory path, which will cause the LiveCycle ES2 installer to prevent the installation from proceeding.

## 4.8.3  Using LiveCycle ES2 with a Luna HSM cluster

When using a SafeNet Luna ethernet-attached Hardware Security Module (HSM) cluster, you must ensure HAOnly mode is enabled on the device.

➤ **To enable HAOnly mode on the Luna device**

1. Use the vtl tool shipped with the Luna client to determine if HAOnly mode is enabled. Type:

```
vtl haAdmin –HAOnly -show
```

2. 1) If HAOnly mode is not enabled, type:

```
vtl haAdmin –HAOnly -enable
```

## 4.8.4  Manual use of Acrobat restricted

If you installed the PDF Generator ES2 or PDF Generator 3D ES2 for native document conversion, use of the bundled Acrobat installation is restricted to the Generate PDF and Generate 3D PDF services and is not licensed for any other use.

## 4.8.5  Temporary directory

LiveCycle ES2 requires a temporary directory to store documents that are larger than the maximum inline size set for document objects. For detailed information on how you can improve the performance of your LiveCycle ES2 server by specifying an appropriate value for this setting, see this *blog*.

(**AIX, Linux, and Solaris only**) If a non-root user is running the application server, the user must have full permissions on the specified temporary directory.

**Note:** If you do not create the temporary directory, the default system-configured location is used.

## 4.8.6  LiveCycle ES2 IPv6 support

LiveCycle ES2 includes IPv6 support. The default configurations defined in the installation documentation for LiveCycle ES2 set IPv4 as the default IP protocol because this protocol has the most compatibility with third-party infrastructure.

Do not enable IPv6 unless your deployment must use it. The number of supported platform configurations is reduced when enabling IPv6 support with LiveCycle ES2. You should verify that all third-party software, hardware, and networks that you plan to use have IPv6 support before you attempt to enable IPv6.

**Note:** If you are enabling CIFS in an IPv6 environment, you must explicitly enable IPv6 configuration after you configure your LiveCycle ES2 installation using LiveCycle Configuration Manager. See "Enabling CIFS in IPv6 mode" in the *Upgrading to LiveCycle ES2 from 8.x* guide for your application server.

## 4.8.6.1  Supported IPv6 configurations

Not all infrastructure components support IPv6. For example, Oracle database do not support IPv6. However, you can still use these databases by configuring the connection between the application server and the databases with IPv4, and the remaining communications over IPv6.

- Databases that support IPv6: Microsoft SQL Server 2005 and 2008, DB2 9.1 or later versions of 9.x

- Databases that do not support IPv6: Oracle 10g, 11g R2

- Application servers that support IPv6: JBoss 4.2.0, 4.2.1, JBoss EAP 4.3; WebLogic 10g R3and 11g R1; WebSphere 7.0.0.9.

## 4.8.6.2  IPv6 implementation guidelines

When you use IPv6 implementation either partially or fully, keep the following points in mind:

- After installing LiveCycle ES2, do not use the option to start the LiveCycle Configuration Manager directly from the LiveCycle ES2 installer. Instead, navigate to the *[LiveCycle ES2 root]*\configurationManager\bin\IPv6 directory, and run the IPv6-specific script (`ConfigurationManager_IPv6.bat` or `ConfigurationManager_IPv6.sh`) to launch the LiveCycle Configuration Manager.

- If you have chosen to validate the application server configuration using the LiveCycle Configuration Manager, the validation will fail after you enable IPv6 for the application server. You can ignore this error message during the process. After you restart the application server in the IPv6 mode, the application server can connect to the database.

- *(WebLogic only)* You need to enable IPv6 for the managed servers only. The Admin Server can continue to run on IPv4, and can be accessed with its IPv4 address. However, the managed server that you have started in IPv6 environment can only be accessed through its IPv6 address or a hostname resolved through DNS.

- *(WebLogic only)* Even if you are running LiveCycle Configuration Manager on the same computer that hosts the application server, you must provide the listen address of the managed server for bootstrapping and deploying LiveCycle ES2 modules. This listen address must be the DNS name that resolves to IPv6 address of the computer.

- To have a pure IPv6 communication with the database server, modify both EDC_DS and IDP_DS connection settings to use the hostname of the database which resolves to a numeric IPv6 address.

- *(Cluster installation only)* If you are installing LiveCycle ES2 on to a server cluster, you must map the numeric IPv6 addresses of each cluster node to the computer's host name in DNS or in the `hosts` file on each cluster node.The `hosts` file is located at:
  - Solaris: /etc/inet/ipnodes
  - Windows: C:\Windows\system32\drivers\etc\hosts
  - Linux:/etc/hosts

- *(JBoss turnkey installation and JBoss for BAM)* Edit the following files:

- *[LiveCycle ES2 root]*\jboss\bin\run.bat: Change `-Djava.net.preferIPv4Stack=true` to `-Djava.net.preferIPv6Stack=true`

- *[LiveCycle ES2 root]*\jboss\bin\service.bat: Replace `- b 0.0.0.0` with `-b <hostname resolved to IPv6 address>`

- Many software components such as database drivers do not completely support numeric IPv6 addresses. So, it is recommended that you use a DNS-resolved hostname instead of numeric IPv6 addresses.

- In an IPv6 environment, if you are using Microsoft SQL Server, you should specify the database server IP address in the following format. Note that in this string, *;serverName* is a keyword, and so must not be replaced with the actual server name.

  ```
  jdbc:sqlserver://;serverName=<IPv6 address>;
  portNumber=<port>;databaseName=<db_name>
  ```

  Here, instead of the numeric IPv6 address, you can specify the hostname of the SQL Server database.

### 4.8.6.3  Configuring IPv6 for JBoss

1. Unzip the bundled JBoss.

2. Modify adobe-ds.xml and the database-specific data source configuration file to connect to the LiveCycle ES2 database.

3. Modify the login-config.xml file to connect to the LiveCycle ES2 database.

4. Modify the following files to enable IPv6:

   - *[LiveCycleES2 root]*\jboss\bin\run.bat: Do the following in this file:

     - Change `-Djava.net.preferIPv4Stack=true` to `-Djava.net.preferIPv6Stack=true`

     - Add the `-Djava.net.preferIPv6Addresses=true` argument.

   - *[LiveCycleES2 root]*\jboss\bin\service.bat: Replace `- b 0.0.0.0` with `-b <hostname mapped to IPv6 address>`

5. Launch LiveCycle Configuration Manager by invoking the *[LiveCycleES2 root]*\configurationManager\bin\IPv6\ ConfigurationManager_IPv6.bat or ConfigurationManager_IPv6.sh script.

6. In the LiveCycle Configuration Manager, select the steps to configure EAR files, bootstrap and deploy LiveCycle ES2 modules.

7. After the LiveCycle Configuration Manager process is completed, copy these EAR files to the *[LiveCycleES2 root]*\jboss\server\all\deploy directory.

8. Start JBoss from a command line.

**Note:** If you are running JBoss on Linux, you must edit the run.sh file to use IPv6.

9. Provide LiveCycle Configuration Manager hostname of the computer that is mapped to its IPv6 address and then bootstrap the application server to deploy the LiveCycle ES2 modules.

### 4.8.6.4  Configuring IPv6 for WebLogic

1. Install LiveCycle ES2 using the installer.

2. Do not launch the LiveCycle Configuration Manager when the installer finishes. Launch LiveCycle Configuration Manager by invoking the *[LiveCycleES2 root]*\configurationManager\bin\IPv6\ConfigurationManager_IPv6.bat or ConfigurationManager_IPv6.sh script.

3. Select the options to configure LiveCycle EARs, WebLogic application server, and verify the application server settings using LiveCycle Configuration Manager.

**Note:** You will get an error message that the LiveCycle Configuration Manager validation of data source has failed. This is because the application server is not yet started in the IPv6 mode, and the data source is now configured in the IPv6 mode. You can ignore this warning at this stage.

4. From the WebLogic Server Administration Console, change the application **Server Start** arguments of the managed server to enable IPv6.

5. Change the listen address of the managed server to enable it using IPv6 address.

   ● In the WebLogic Server Administration Console, select **Environment** > **Servers** > [Managed Server Name] **Configuration** tab.

   ● In the Listen Address field, enter the hostname of the computer. Ensure that this hostname resolves to the IPv6 address of this computer.

6. Save the changes, and then restart the managed server.

7. Launch LiveCycle Configuration Manager by invoking the *[LiveCycleES2 root]*\configurationManager\bin\IPv6\ConfigurationManager_IPv6.bat or ConfigurationManager_IPv6.sh script.

8. In the LiveCycle Configuration Manager, select the steps to deploy EAR files, bootstrap, deploy LiveCycle ES2 modules.

9. Enter the same hostname as provided in the listen address field of the managed server.

**Note:** Even if you are running LiveCycle Configuration Manager on the same computer, you must provide the listen address of the managed server for bootstrapping and deploying LiveCycle ES2 modules.

### 4.8.6.5  Configuring IPv6 for WebSphere

1. Install LiveCycle ES2 using the installer script. After the installation is complete, do not start the LiveCycle Configuration Manager when the installer prompts.

2. Navigate to the *[LiveCycleES2 root]*\configurationManager\bin\IPv6 directory, and run the IPv6-specific script (`ConfigurationManager_IPv6.bat` or `ConfigurationManager_IPv6.sh`) to launch LCM.

3. Use the LiveCycle Configuration Manager options to configure EAR and the application server.

4. Follow the steps in the LiveCycle Configuration Manager to configure the application server. While configuring database, provide hostname of database that is mapped to IPv6 address.

5. Validate the application server configuration by LiveCycle Configuration Manager. Ignore the warning if data source validation fails. You can validate data sources from WebSphere Administrative Console.

6. On the WebSphere Administrative Console, navigate to the page where JAVA_OPTIONS are specified and do the following tasks:

   ● Change `-Djava.net.preferIPv4Stack=true` to `-Djava.net.preferIPv6Stack=true`.

   ● Add the `-Djava.net.preferIPv6Addresses=true` argument.

7. Manually deploy the EAR files to WebSphere Application Server by using WebSphere Administrative Console. Configured EAR files are available at *[LiveCycleES2 root]*/configurationManager/export folder.

8. Restart WebSphere Application Server.

9. Navigate to the *[LiveCycleES2 root]*\configurationManager\bin\IPv6 directory, and run ConfigurationManager_IPv6.bat or ConfigurationManager_IPv6.sh to launch LiveCycle Configuration Manager.

10. In the LiveCycle Configuration Manager, select the options to bootstrap and deploy LiveCycle ES2 modules. Provide the appserver give hostname that is mapped to IPv6 address.

**Note:** After you start the application server in an IPv6 environment, (with the flag `-Djava.net.preferIPv6Stack=true`), you can access it only through its IPv6 address or hostname mapped to IPv6 address.

# 4.9  Server configuration for enabling CIFS

To enable file access to Content Services ES2 as a network folder for Windows clients of LiveCycle ES2, you need to enable Common Internet File System (CIFS) in Content Services ES2. Perform the following steps before you can enable CIFS:

● "Creating a virtual interface (AIX, Linux, and Solaris only)" on page 64

● "Configuring Windows Server for CIFS" on page 65

**Note:** If you are enabling CIFS in an IPv6 environment, you must explicitly enable IPv6 configuration after you configure your LiveCycle ES2 installation using LiveCycle Configuration Manager. See "Enabling CIFS in IPv6 mode" in the *Upgrading to LiveCycle ES2 from 8.x* guide for your application server.

## 4.9.1  Creating a virtual interface (AIX, Linux, and Solaris only)

If you want to enable CIFS on LiveCycle ES2 deployed on AIX, Linux, or Solaris platform, you must create a virtual interface and assign it an IP address on the server that runs LiveCycle ES2. This is required because the CIFS protocol uses the same ports that are used by Samba service on AIX, Linux, or Solaris computers. You specify this virtual IP address as the alternate IP address when you enable CIFS using the LiveCycle Configuration Manager.

If your LiveCycle ES2 implementation is on IPv6, you should create virtual IPv6 interfaces on the CIFS server. The interfaces that you create should be within the same network as the CIFS clients. See the documentation related to your operating system for more information.

**Note:** You should add the virtual interface that you create to the /etc/hosts file to make them persist across reboots.

## 4.9.2  Configuring Windows Server for CIFS

You will need to manually configure the Windows Server 2003 and 2008 computers that host LiveCycle ES2 to enable CIFS on them. When CIFS is enabled, users can access the Content Services ES2 repository as a network folder and perform various file operations on their local file system. In LiveCycle Content Services ES2, CIFS is supported for enterprise domain users with ActiveDirectory as their directory provider.

**Note:** Ensure that the CIFS server has a static IP address for Java-based CIFS implementation. For Windows native implementation, a static IP address is not required.

On Windows computers, you need to do the following:

- "Enable NetBIOS over TCP/IP" on page 65
- "Add additional IP address" on page 65
- "Disable SMB over NetBIOS registry (Windows 2003 only)" on page 65
- "Disable File and Printer Sharing (Windows 2008 only)" on page 66

### 4.9.2.1  Enable NetBIOS over TCP/IP

You need to enable NetBIOS over TCP/IP so that clients connecting to the LiveCycle ES2 server can have their requests resolved for the server host name.

1. In the **Local Area Connection Properties** dialog box, on the **General** tab, select **Internet Protocol**, and then click **Properties**.

2. In the **General** tab of the **Internet Protocol (TCP/IP) Properties** dialog box, ensure that the server has a static IP address. Click **Advanced**.

3. In the **Advanced TCP/IP Settings** dialog box, select the **WINS** tab and select **Enable NetBIOS over TCP/IP**.

### 4.9.2.2  Add additional IP address

**Note:** This step is required only for Java-based CIFS implementation.

1. In the **Local Area Connection Properties** dialog box, on the **General** tab, select **Internet Protocol**, and then click **Properties**.

2. In the **General** tab of the **Internet Protocol (TCP/IP) Properties** dialog box, ensure that the server has a static IP address. Click **Advanced**.

3. In the **Advanced TCP/IP Settings** dialog box, select the **IP Settings** tab and click **Add**.

4. Specify a static IP address and click **Add.**

### 4.9.2.3  Disable SMB over NetBIOS registry (Windows 2003 only)

You must disable SMB over NetBIOS by editing the Windows registry.

1. In the Windows Registry Editor, navigate to **HKEY_LOCAL_MACHINE** > **SYSTEM** > **CurrentControlSet** > **Services** > **NetBT** > **Parameters**.

2.  Set the DWORD **SMBDeviceEnabled** to 0. If it is not present, add a new DWORD value with name `SMBDeviceEnabled` and set it to `0`.

### 4.9.2.4 Disable File and Printer Sharing (Windows 2008 only)

**Caution:** After you disable file and printer sharing with this step, you will not be able to access the server directly using Windows file sharing protocol. This computer will not display in the Windows network view.

● Go to Network Settings and deselect **File and Printer Sharing for Microsoft Clients** and c lick **Apply**.

# 4.10 Processes with document form variables and digital signatures

If you are upgrading from a previous version of LiveCycle and changing your LiveCycle ES2 server, you may disrupt any processes that use the document form variable or digital signatures. This is because these forms are rendered only once, setting the submit URL. Changing the server breaks the certificate.

Choose the solution that is most appropriate for your LiveCycle ES2 environment from the following solutions:

**Solution 1:** Complete all processes that use a form document variable before you upgrade or move to the remote server. Use this method if you maintain legacy LiveCycle servers after the upgrade. This approach also eliminates the need for *throw-away* work to be done to manage the redirection of the form submissions. This method is not practical if you have many outstanding processes.

**Solution 2:** If the server being upgraded is not being decommissioned, a reverse proxy approach is preferable. With this method, you maintain the reverse proxy on the old system until all the migrated processes are completed.

S**olution 3:** You can use the Apache `mod_rewrite` module to modify the embedded URLs in each form as they are delivered to the client.

**Note:** If your LiveCycle implementation is on IPv6, clients using EJB invocation for PDF creation report exceptions. This is a known issue attributed to Sun JDK 6. See http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=6230761 for details.

# 4.11  LiveCycle ES2 Central Migration Bridge

The LiveCycle ES2 Central Migration Bridge service helps you to migrate existing applications from your Adobe Central Pro Output Server or Web Output Pak products to work with the LiveCycle ES2 Output service. The Central Migration Bridge service allows you to use your current IFD/MDF templates, data transformation scripts, and DAT files in a LiveCycle ES2 environment as part of an overall migration strategy.

**Note:** The Central Migration Bridge is useful only if you have existing Central Pro applications to migrate.

### Authorized use of Central Migration Bridge

To use the Central Migration Bridge service, you must have a valid license for Adobe Central Pro Output Server 5.7 or an executed Adobe Central Pro Output Server 5.7 migration agreement. To install Central Pro Output Server 5.7, use your existing media and existing product authorization code (PAC). Your PAC is for a specific operating system platform; if this differs from the operating system platform on which you are installing LiveCycle ES2, you will need to acquire a PAC for that operating system. Contact your Adobe representative for more information regarding migration, executing a migration agreement, or acquiring Central Pro Output Server 5.7 media or PAC.

### Installation considerations

The Central Migration Bridge service interacts directly with the Central Pro (version 5.7) executable files. You must have Central Pro installed on the same server as LiveCycle ES2, but it is not a prerequisite to installing LiveCycle ES2 (that is, it can be installed before or after LiveCycle ES2). Consult the Central Pro documentation set for installation instructions.

**Caution:** Do not start Central Pro or change its properties to run automatically.

On Windows, the Central Pro service *Adobe Central Output Server* is installed as a manual service. Do not run the service or change its properties to run automatically.

On AIX, Linux, or Solaris, do not start the Central Pro daemon *jfdaemon*. If you edited the start-up script of your computer to launch jfdaemon when restarting the computer, change the script to prevent the daemon from being launched automatically. (See the Central Pro installation documentation.) Do not start Central from the command line by launching the jfserver process.

**Note:** The LiveCycle ES2 User that invokes the Central Migration Bridge service must have access rights to the Central Pro install directory as well as execute permissions on the Central Pro executable files.

### LiveCycle ES2 turnkey installations

If you are installing and configuring a LiveCycle ES2 turnkey environment using Express mode, the Central Migration Bridge service will be installed and configured by default - you will not be prompted for any input.

**Note:** Ensure that the Adobe Central Pro product is installed in the default directory.

### LiveCycle ES2 custom installations

If you are installing and configuring LiveCycle ES2 using the Custom mode (Partial turnkey or Manual), LiveCycle Configuration Manager will prompt you to include Central Migration Bridge in the deployment.

By default, the service will use the default Central Pro installation path. If Central Pro is installed in a different location, update the [Central Install Dir] configuration for the Central Migration Bridge Service by going to LiveCycle Administration Console.

When you have finished installing LiveCycle ES2, if Central Pro is not installed in the default location, do the following steps to point LiveCycle ES2 to the correct directory:

1. Log in to LiveCycle Administration Console.

2. Click **Services > Applications and Services > Service Management**.

3. Click the **Central Migration Bridge:1.0** service.

4. Type the correct path to the Central Pro install directory.

5. Click **Save**.

**Note:** This configuration can also be made in Workbench ES2. (See *Creating LiveCycle ES2 Processes* or *Creating LiveCycle ES2.5 Processes*, as applicable.)